A HANDBOOK

OF

OBSTETRICAL NURSING,

FOR

NURSES, STUDENTS AND MOTHERS.

COMPRISING THE COURSE OF INSTRUCTION IN OBSTETRICAL NURSING GIVEN TO THE PUPILS OF THE TRAINING SCHOOL FOR NURSES CONNECTED WITH THE WOMAN'S HOSPITAL OF PHILADELPHIA.

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TO

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WOMAN'S HOSPITAL OF PHILADELPHIA,

THIS VOLUME

IS AFFECTIONATELY DEDICATED.

PREFACE.

The teachings embodied in this little book are chiefly the substance of a series of lectures delivered, yearly, by Dr. Anna E. Broomall to the nurse-pupils of the Woman's Hospital of Philadelphia.

The methods advocated by Dr. Broomall are strictly observed in the practical work of the Maternity connected with the Woman's Hospital —a building mainly planned by Dr. Broomall and built during her administration as Physician-in-Charge of the Woman's Hospital.

The excellent results attained by an adherence to these methods prove the value of *cleanliness*, *antisepsis and eternal vigilance* on the part of the nurse, in averting the dangers of childbirth and reducing the mortality of early infancy.

The great importance of a thorough understanding of the many little details of scientific nursing on the part of the physician leads me to trust that this little book may be of value to physician as

well as nurse; and since both of these must have the entire support, sympathy and assistance of the patient in their efforts for her well-being, the directions herein given as to preparations to be made, and rules of action to be observed, will, it is hoped, enable the patient to work in harmony with those who are working for her good.

My thanks are due to Dr. Broomall for her kindly advice and encouragement in the completion of this handbook, and to Dr. Louise L. Wylie for valuable assistance given in the preparation of the illustrations.

ANNA M. FULLERTON.

Woman's Hospital of Philadelphia,
December, 1889.

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"He shall gather the lambs with his arm and carry them in His bosom, and shall gently lead those that are with young."

—Isaiah, Chap. xl, v. 11.

OBSTETRICAL NURSING.

CHAPTER I.

SIGNS OF PREGNANCY.

Signs of pregnancy.

The signs of pregnancy may be divided into three classes: the suspicious, the probable, and the certain.

Suspicious signs.

Under the head of suspicious signs may be classed the many nervous sensations which are apt to accompany early pregnancy; as, general discomfort, sudden changes of temperature, headache, toothache, giddiness, faintness, changes in disposition.

Probable signs. Cessation of menstruation.

Of the probable signs, one of the earliest and most constant is the stoppage of the monthly flow in a person who has been regular. This may be, however, caused by other conditions than pregnancy. Thus, change in one's mode of living, a new climate, or general ill-health may produce the same result. In the early months of marriage we may also have an irregularity in menstruation where there is no pregnancy. On the other hand,

in rare instances, we may have the monthly flow persisting for some months or throughout the entire pregnancy. It is then generally scanty and short in duration.

Deepened color of vagina.

A deepening in the color of the vagina and vulva, by which they take on a purplish hue, is another sign, and is caused by the enlargement of the blood vessels and a stoppage of the circulation, due to pressure from the enlargement of the uterus. This coloration may be caused to some extent by tumors.

Development of breasts.

Increase in the size of the breasts occurs in the early months of pregnancy with a deposit of coloring matter in the areola, or ring, which surrounds the nipple. Some of this coloring matter seems to extend irregularly over the outer margin of the ring, and is called the "secondary areola" or "areola of Montgomery." With this distention of the breasts there is also a secretion found in them—a watery fluid, sometimes yellowish in color, known as "colostrum."

Temporary distention of the breasts, with the accumulation of this secretion, may occur in a slighter degree as an accompaniment of menstruation, or it may persist for a long time after a woman has stopped nursing her infant.

Enlargement of abdomen.

Enlargement of the abdomen, which begins about the third month of pregnancy, is another important sign. Yet this may also be caused by tumors, or

by flatulence, or the deposit of fat in the abdominal walls.

Marks upon the abdomen, due to the rapid stretching of the skin, sometimes occur in great numbers, and are called "striæ," owing to the fact of their resemblance to the marks left by whip-lashes. These marks sometimes extend down upon the thighs. This, too, may be caused by tumors. The "brown line" of pregnancy is the deposit of pigment in the median line of the abdomen. This may exist when there is no pregnancy, as also may the peculiar browning of the skin found in irregular patches over the face, particularly on the forehead, and called the "mask of pregnancy."

"Striæ."

Brown-line and "mask" of pregnancy.

"Morning sickness," another sign, begins early in the second month or at the time of the first missed period. It is generally confined to the first three months and is largely a nervous symptom. It varies much, however, in degree and time of occurrence. Sometimes it is simply a slight feeling of sickness at the stomach occurring early in the morning; again, it may persist throughout the entire day, or it may occur one day and not again for several days. Sometimes it continues throughout the entire pregnancy, and is then dangerous because of the constant loss of food. Sometimes it occurs early in the pregnancy, then disappears to reappear

Morning sickness.

in the last month, when there is direct pressure upon the stomach.

"Quickening."

"Quickening"—or the appreciation of the movements of the child by the mother—is another probable sign, and is first experienced about the middle of pregnancy. A woman who has previously borne children feels this sensation about two weeks earlier than one pregnant for the first time.

Other probable signs.

There are other probable signs of pregnancy which would come only under the observation of the physician. As they require considerable knowledge of obstetrics and skill in the conducting of an examination for the discovery of pregnancy, we will not do more than refer to them here.

Positive signs.

The *positive* signs of pregnancy as agreed upon by most obstetricians are but two: the direct appreciation of the parts of the child by touch, and the "fœtal pulse," or heart sounds, of the child. The "fœtal pulse" is, as a rule, twice as fast as the pulse of the mother. It is hardly strong enough to be heard, even by experienced ears, much before the 5th month—or end of the 20th week—rarely heard well before the 24th week.

Methods of reckoning termination of pregnancy.

The ordinary method of reckoning the probable date of confinement is as follows: Learn on what day the last monthly flow began, then count three months backward (or nine months forward) and add seven days. For example, say that a woman

was unwell last on March 15th, counting three months back, gives December 15th; add seven days, and we have December 22d as the probable date of her confinement. When, for any reason, it is impossible to make the calculation by this method, it may be computed by adding four and a half months to the date of quickening in the case of a woman pregnant for the first time, and five months in the case of one who has previously borne children.

The third method, that of adding forty weeks, or ten lunar months, to the date of conception is too uncertain to be of much practical use. Examination of the patient by an intelligent physician who knows and appreciates the distinctive signs of the several months offers a fourth method of computing the date of pregnancy.

CHAPTER II.

MANAGEMENT OF PREGNANCY.

Attention to laws of health.

The management of pregnancy consists, for the most part, in greater attention to the laws of health. The increased activity of all the organs of the body, together with the disturbances caused by pressure, necessitates this.

Constipation.

Constipation is an almost invariable accompaniment of pregnancy. In the early months it is a sympathetic condition; later, the effect of direct pressure upon the bowels. It is also, undoubtedly, in part due to the want of exercise.

The treatment of constipation is the same as in other conditions, except that only mild laxatives are used. Regularity in attention to the bowels, a glass of cold water at night and again in the morning, liquids (either milk or water), not taken with the meals, but in the intervals, a teaspoonful of common salt in the water occasionally, the use of uncooked fruit and coarse bread, the avoidance of starches and fine flour—all these are helpful in overcoming this condition. There is an objection to the use of sugared fruits, as confections of fruit, senna leaves, etc., because of their liability to disturb the stomach.

Prunes are, perhaps, the least objectionable; licorice powder, because of the senna which it contains, is apt to cause griping pains. Rhubarb is, perhaps, the best of the mild laxatives. A small piece of rhubarb root, the size of a pea, may be taken at night, followed by a glass of water. If there is an objection to its taste, it may be taken in pill form.

Cream of tartar, a half a teaspoonful being taken at night in a cup of cold water, is often efficient. In some cases it may be necessary to repeat the dose in the morning.

Massage of the abdomen, so efficient in the management of constipation, should never be resorted to in the pregnant state, as it is apt to excite uterine contractions, and may lead to a miscarriage. There is an objection to the too frequent use of enemata on the same ground; also, the habit is thus acquired of depending upon this stimulus, and over-distention of the bowel is the result. It may be necessary, however, occasionally to alternate an enema with a laxative, especially when the patient suffers from piles.

Diarrhœa.

Diarrhœa is rather a rare disturbance of pregnancy, but it sometimes occurs as a direct result of constipation—small, hardened masses forming in the bowel, known as "scybala," which produce an irritation of the mucous lining. The use of rhubarb night and morning, in the manner described above,

until all the masses are removed from the bowels, will serve to check the diarrhœa.

The urinary organs.

Changes in the urinary organs are mainly due to direct pressure. In the first three months of pregnancy there is direct pressure on the bladder, hence

Irritability of the bladder.

great irritation, due to interference with the distention of the bladder, producing a constant desire to pass water. For this the recumbent position is the only help. The uterus rises in the abdomen at the end of the third month, and the bladder being thus relieved from pressure, this symptom passes away.

Retention of urine.

The tendency from the fourth to the ninth month is to the accumulation of urine, because there is less than the proper irritability of the bladder, the organ being flattened between the uterus and the abdominal wall, and its walls thereby suffering a partial paralysis.

Incontinence of urine.

In the last month there is incontinence of urine, because the pressure is so great that there is no room for the accumulation of urine.

Retention of urine in last month of pregnancy.

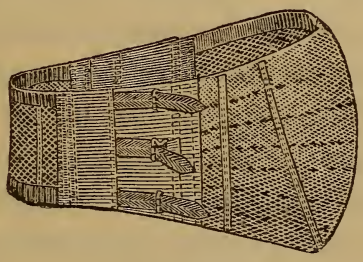
During labor there is pressure upon the neck of the bladder and urethra, leading to retention. This may exist for the last two weeks of pregnancy. Necessity for the use of the catheter is confined, as a rule, to this period. The distention of the bladder may impede labor. With the drawing up of the uterus the bladder is drawn up and the urethra elongated, hence the use of the long rubber catheter,

known as the English catheter, will be necessary. Nos. 8 and 9 are those ordinarily used.

Excessive acidity of urine.

Sometimes irritability of the bladder is due to excessive acidity of the urine. A physician will generally prescribe some alkali to overcome this condition, as a drop of liquor potassa in a tablespoonful of milk once in three or four hours, or the use of mucilaginous drinks, as flaxseed tea, barley water, milk, etc., may relieve the distress.

FIG. 1.



Abdominal Belt.

Use of binder.

When the abdominal walls are much stretched and the uterus falls upon the bladder, this may be remedied by the use of the binder or an abdominal supporter.

Excoriation of vulva.

Incontinence of urine leads to the excoriation and reddening of the parts about the vulva. Frequent washing with warm water and borax or pure castile soap relieves the irritation. Diachylon or zinc ointment is best when an ointment is needed.

Over-distention of bladder.

Incontinence is sometimes the result of over-distention of the bladder. Here the use of the catheter is indicated.

Use of catheter.

A nurse, unless thoroughly experienced, should never attempt passing the catheter in the case of a pregnant woman, as serious injury may be done to the soft parts in a bungling attempt. In all cases, she should have the sanction of the physician before so doing.

The kidneys.

The kidneys are especially subjected to pressure from the seventh to the ninth month of pregnancy. A passive congestion is thus produced, which may

Albuminuria.

lead to the occurrence of albuminuria, or albumin in the urine. This is an evidence of a drain upon the blood which the physician needs to watch very carefully. It is customary, therefore, for physi-

Examination of urine.

cians to examine the urine of patients whom they expect to attend, at least once a week, from the seventh month on to the termination of pregnancy. A specimen obtained by the use of the catheter is the best for the purpose, if the patient be troubled by a discharge from the vagina.

Increase in amount of urine.

There is a natural increase in the amount of urine passed by a pregnant woman, but the increase is mainly in the water. Therefore, the urine will be lighter colored than usual. The reaction of the urine should be acid.

Should the reaction be alkaline, or the quantity

of urine diminished rather than increased in amount, the fact should be reported to the patient's physician.

Leucorrhœa. Leucorrhœa, a discharge from the vagina, commonly known as "the whites," is much increased often during pregnancy, and is due to the greater activity in the secretion of all the mucous membranes. If a vaginal discharge be of a white, yellow or green color, it indicates inflammation of the vagina itself. The discharge, on reaching the vulva and coming in contact with the air, decomposes and becomes irritating. Cleanliness is important in overcoming the effects of this. The itching induced by it is sometimes very obstinate, and generally worse at night. A solution of borax and water for bathing the parts, or carbolic acid, 15 to 20♏ to a pint of water, will often give relief. Should vaginal injections be ordered by the physician, they should be given with great caution. A fountain syringe should be used, which produces a continuous stream. The interrupted stream should never be employed. In some conditions of excessive discharge the physician may prescribe tannic acid suppositories to be used nightly in the vagina. After a thorough drying of the parts surrounding the vulva, they may be dusted with a powder consisting of one part powdered camphor to four parts starch. This often gives great relief. Calomel powder may be used in the same way.

Hemorrhoids or piles.

Hemorrhoids, or piles, are often very troublesome during the latter part of pregnancy. Lying down immediately after a movement of the bowels, and remaining in the recumbent position for ten to fifteen minutes, will tend to relieve them, also care in obtaining a daily evacuation of the bowels, and the use of means to secure as soft a movement as possible. Should the piles come down they should be fomented by cloths wrung out in warm water, to which a little Pond's Extract or fluid extract of hamamelis may be added—one tablespoonful, or two, to one pint of water—and when shrunken, anointed with cold cream or cosmoline and returned into the bowel.

Sometimes the case is so aggravated as to necessitate keeping the patient in bed for a time. A physician should of course be consulted about the treatment.

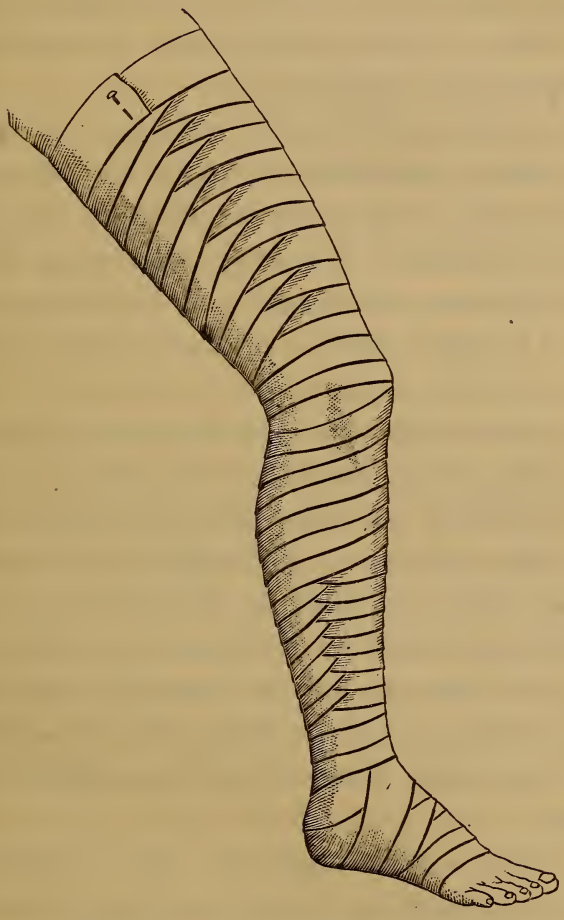
Swelling of lower limbs.

The swelling and pain of the external organs of generation and of the lower limbs, resulting from pressure and the over-distention of the blood vessels, is best relieved by the recumbent posture.

Should the veins of the leg be much enlarged, or the feet swollen, the patient should have compression made over them by the application of a bandage (the spiral-reverse of the lower limb), or she should wear an elastic stocking, such as may be obtained of any good instrument maker. For

the bandage the best material is flannel cut bias, the width being about three inches. The bias

FIG. 2.



Spiral Reverse Bandage of Lower Extremity.

bandage makes more even compression. Great harm may result from the neglect of enlarged

veins, as they sometimes become so distended as to burst.

Pain from distention of abdominal walls.

Pain caused by the stretching of the walls of the abdomen may be relieved by thorough inunction of the skin. Cotton-seed, olive or cocoanut oil may be used for the purpose.

Pains in back.

Severe pains in the back, neuralgic in character and so severe sometimes as to prevent the patient from sleeping, may yield to change of position, relieving pressure. Rubbing with soap liniment, volatile liniment, whiskey, or any liniment not too active, is helpful. Warm hip-baths may sometimes be prescribed by a physician.

Increased activity of salivary glands.

The salivary glands are in some cases very active during pregnancy, inducing so excessive a secretion of saliva as to cause the patient great annoyance. This trouble is generally very intractable, and may refuse to yield to all treatment, ceasing only with parturition. Astringent washes, as of tannic acid, alum, myrrh, etc., may be tried, as also the use of pieces of ice. Physicians sometimes use atropia in small doses. Its use requires careful watching.

Bad teeth.

Bad teeth, which occur so often during pregnancy, are said to be due to acidity of the saliva, A little baking soda or prepared chalk placed in the mouth at night will counteract the effect of this acidity when it exists. The question is often asked

Filling or drawing of teeth during pregnancy.

whether there is any danger in having the teeth filled or attended to during pregnancy. There is always some danger, because a certain amount of nerve-irritation is the result. If the patient be suffering, however, it is better to have them filled by a temporary rubber filling, which causes little pain or irritation, than to lose rest in consequence of toothache. Extraction of the teeth should only be allowed when absolutely essential. If the pain be simply a neuralgic pain, it is better to wait.

Vomiting of pregnancy.

Vomiting is, as has been said in the preceding chapter, a most common accompaniment of pregnancy. It more frequently exists, perhaps, with the first pregnancy than any other. The act is accomplished, as a rule, without much effort. Diet seems to have but little effect upon it. Various articles have been recommended for it, as rice-water, beef-tea, barley-water, the various gruels, the yolk of a hard-boiled egg, scraped beef in the form of sandwiches, ice-cream, cracked ice, etc. In some cases one or other of these seems to relieve the irritation. A cup of coffee, weak tea, or milk taken warm early in the morning before the patient raises her head from the pillow, will often act as a preventive. In extreme cases of vomiting rectal feeding must be resorted to. In obstinate vomiting it is important that the physician should examine for the position of the uterus or the existence of ulcerations or erosions.

It must not be forgotten that the constant loss of food may be so great a drain upon the patient's strength as to endanger her life. As this symptom is so largely sympathetic, the proper use of bromides or other nerve sedatives prescribed by a physician may be of great use in checking it.

Care of the breasts.

Care of the breasts in a pregnant woman necessitates careful attention to the prevention of compression. Full development should be permitted by the looseness of the clothing. The importance of the proper dressing of growing girls cannot be overestimated in this connection. Did mothers realize the evils—of which the atrophy of the breasts is but one—resulting from tight lacing, there would be fewer unhealthy women and fewer mothers unable to nurse their offspring. The nipples should be prevented from rubbing, and the skin over the nipples should be strengthened by using the

Nipple bath.

nipple-bath—filling a small, wide-mouthed bottle one-third full of cold water and inverting it over the nipples daily, from five to ten minutes at a time. Sometimes a little cologne-water or alcohol

Use of oil.

is added to the nipple-bath. Keeping off scabs and concretions of various kinds from the surface of the nipples by the use of a little oil is also admissible.

Nipple protector.

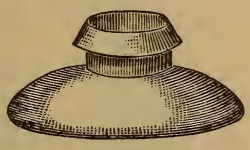
The use of the nipple-protector, which will be referred to more fully in the chapter on the management of the lying-in, is of great importance

where there is a tendency to flattening of the nipple, to remove the pressure of the clothing.

Clothing.

The clothing of a pregnant woman should be worn loose from the very beginning, both because the breasts begin to enlarge early and corsets interfere with their development, and because any amount of pressure upon the intestines tends to produce uterine displacements, which are especially dangerous during pregnancy, as they predispose to abortion. The clothing should all be supported from the shoulders.

FIG. 3.



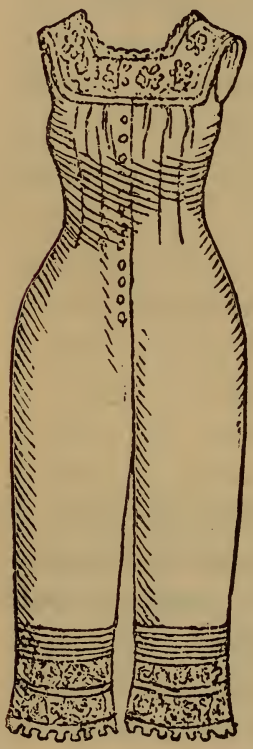
Nipple Protector.

Hygienic dressing.

Many new dress-reform systems are now in vogue, having for their object the great desideratum of adjusting woman's dress so as to make it both healthful and beautiful. Fortunately, in this enlightened age ideas of physical culture are so modifying old-time ideas of beauty that the wasp waist, the multitudinous and voluminous skirts, the awkward and deforming bustle, the high-heeled boot, are fast becoming relics of the past. Among the dress-reform systems now in existence there is none so fully meets my views of healthful and beautiful dress-

ing as the Jenness–Miller System. But few garments constitute the costume, and these are so constructed as to allow perfect freedom of every part of the body.

Fig. 4.



Jenness-Miller Chemilette.

Fig. 5.

Jenness-Miller Divided Skirt.

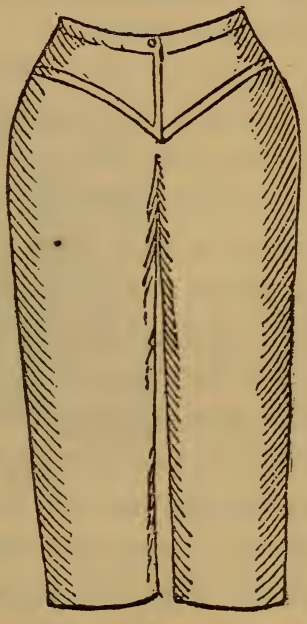
A complete costume for summer wear, according to this system, would consist in the chemilette—a combined chemise and pair of drawers—around the waist of which buttons may be fastened, to which the second article of dress, the divided skirt or Turkish leglette is buttoned. The latter is made

so full that it takes the place of petticoats, and the dress may be comfortably worn over it. Should the dress be of some very sheer material, one additional muslin petticoat may be worn, similarly fastened to the waist of the chemilette. If a person

FIG. 6.

Union Undergarment.

FIG. 7.



Jenness-Miller Leglette.

is accustomed to wearing merino or silk underwear both summer and winter, the jersey-fitting union under-garment may be worn beneath the chemilette, or, the latter being dispensed with, the Jenness-Miller "model bodice," or the Equipoise waist and

divided skirt, may be worn alone over the union under-garment.

For winter wear, plain leglettes of flannel, cashmere or silk, or the same material as the dress, may be worn over the union under-garment and directly beneath the dress. Thus under-skirts are entirely dispensed with and all the clothing is supported from the shoulders.

The skirts of winter dresses, being comparatively heavy, should be fastened to a waist of their own which has comfortably-cut armholes.

Garters fastened to the waist are discountenanced, according to this system—as they should be, for they produce too much dragging on the waist, and the spiral-spring Duplex Ventilated garter is recommended to be worn until something better is devised.

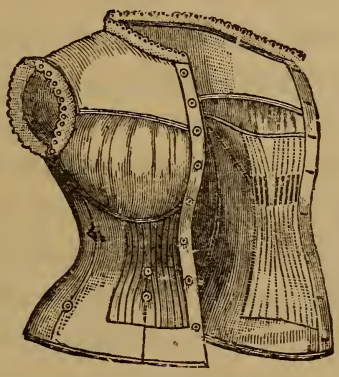
It is probable that the fashion will come into vogue of combining the stockings with the union under-garment, when garters will be done away with entirely.

Slender women can well wear the chemilettes, dispensing with all boned waists. Stout women, having busts, find more comfortable the model bodice, or the Equipoise waist,* which, I believe, is not one of the garments of this system, but an exceedingly comfortable one, in my opinion. Mrs.

* This, with the other garments mentioned, may be obtained through the Dress Reform Emporium in Philadelphia, or similar agencies in other cities.

Jenness-Miller is now devising some form of breast support which aims to support the weight of the breasts from the shoulders, so that waists containing bones may not be regarded as a necessity, even by the stout. Both the "model bodice" and Equipoise waist (the latter of which I prefer) contain bones, but dispense with the front steels, so injurious in the ordinary corset.

FIG. 8.



The Equipoise Waist.

For the changes in shape induced by advanced pregnancy the union under-garments will need to be of larger size than those ordinarily worn (about two sizes larger). Many beautiful designs for dresses and other outer-garments have been devised by Mrs. Miller, patterns for which may be obtained of the Jenness-Miller Co., in New York, or its agencies in other cities. Before leaving the subject I would mention, as one especially praiseworthy feature of

this system, the perfect use of the arms permitted by the ingeniously devised patterns for sleeves and shoulder straps.

Abdominal binder.

When the abdominal walls are much relaxed, from stretching, allowing the womb to fall forward, it is well to use an abdominal binder or belt, especially during the last month of pregnancy. This helps to keep the uterus in proper position.

Flannel underwear.

Flannel should be worn — at least during pregnancy—both summer and winter. A lighter flannel can be substituted in summer for that which would be worn in winter. The use of flannel is to prevent chilling of the surface, and this is especially important where—as in pregnancy—the kidneys are overworked. It is important also for the condition of the heart and lungs. Coughs often cause premature labors. The jersey-fitting knit union undergarment, before referred to, may be obtained in all grades and sizes and is well suited to the purpose.

Bathing.

Bathing is very necessary for a patient during her pregnancy as at other times. As regards the character of the bath, she can do as she has been accustomed to, using warm or cold water. A change from warm to cold water, or *vice versâ*, is, however, not allowable. A sponge-bath, followed by brisk rubbing, is the most desirable. The skin is thus kept in good condition. Shower-baths should be avoided.

Sea voyages are injurious, because of the danger of receiving falls or blows in consequence of the motion of the vessel, and also because of the liability to sea-sickness induced by them. When it is absolutely necessary to take a sea voyage, there is probably least danger in the last three months of pregnancy, because the placenta, or afterbirth, is then well developed and its attachment to the uterus close. Sea voyages.

The regulation of the diet during pregnancy is of great importance. A patient should eat heartily for breakfast and dinner, but the evening meal should be light, especially from the seventh month on to the close of pregnancy. This meal should consist of stale bread, with butter and cooked fruit, as stewed apples, and a glass of milk or weak tea. Digestion is less active in the latter part of the day, and often a hearty meal may prove the direct exciting cause of convulsions. The food should be plain, wholesome, nourishing, well-cooked, and chosen in each case with special reference to the avoidance of digestive disturbances and constipation. Meat in moderate quantity, broths, milk, eggs, and fresh fruit should constitute an important part of the dietary. Pastry and confections should be avoided. Diet during pregnancy.

There is a mistaken theory prevalent in this day that a mother, by abstaining from certain kinds of Fruit diet.

food, as meat, eggs, milk, etc., and confining herself chiefly to a fruit diet, may thus, by preventing the hardening of the bones of the child, do away largely with the pains of labor. The truth of the matter is this: that during pregnancy all the functions of the mother's body are especially active in promoting the development of the child, hence an insufficient supply of essentially nourishing food will first affect the mother's system and render her unfit for the demands upon her strength at the time of parturition.

Should a restriction to the fruit diet effect what it is claimed to do as regards the infant, it would result in the production of sickly, rachitic children, poorly developed mentally and physically.

Exercise. Moderate exercise is essential during pregnancy. Walking on a level, not riding, is the best form of exercise. A daily walk should be taken, not, however, after nightfall. The patient should avoid lifting—in fact, all straining movements—and most particularly should she avoid the use of the sewing-machine.

CHAPTER III.

ACCIDENTS OF PREGNANCY.

A discharge of blood from the womb, known as "uterine hemorrhage," may occur at any time during the pregnancy, and is usually a sign that the patient is threatened with a miscarriage. However slight the flow, the nurse should have the patient lie down until the doctor has been told of its occurrence, and decides what the patient should do. A note should be sent to the doctor, telling just what has happened, and clearly making him understand the urgency of the symptoms—that is, the amount and character of the flow—and the condition of the patient. A nurse should not trust to a verbal message, as the physician may fail to respond to the call promptly, not being aware of the urgency of the symptoms. The patient should be required to use the bed pan, or, at least, a vessel the contents of which can be thoroughly examined, both for the bowels and the passage of urine. All discharges, soiled clothing, clots, etc., should be carefully saved for the inspection of the physician.

Hemorrhage.

Recumbent position.

Note to physician.

Preservation of discharges.

Meantime, an effort should be made on the part of the nurse to control the flow. The patient should

Efforts of nurse to control flow.

lie with her head low, and a pillow under her hips; she should not be warmly covered, plenty of cool, fresh air should be admitted into the room and she should be kept exceedingly quiet.

To prevent fainting.

Should the symptoms become more urgent, the patient being threatened with fainting, the head may be lowered by raising the foot of the bed, placing bricks or chairs under it in such a way as to make a decided inclined plane of the bed. The patient should be fanned, given hartshorne to inhale, and her limbs rubbed, to keep them warm, with alcohol or whiskey. Small doses of whiskey or aromatic spirits of ammonia may be given her in cold water, if able to swallow, or black coffee, or tea, not too warm. If there is much blood flowing from the vulva, vaginal injections of hot water, at a temperature of about 110° to 115°, may be kept up until the flow ceases.

Vaginal injections.

Causes of hemorrhages.

Alarming hemorrhages are often the result of accidents, falls or blows, or they may be caused by heavy lifting.

Unavoidable hemorrhage.

Hemorrhage from a low attachment of the placenta, or afterbirth, or when the afterbirth occupies an unusual position—that is, at the side of or over the mouth of the womb—occurs without any history of accident. It takes place at any time from the seventh month of pregnancy on to its termination, and without any premonitions of its coming. It may

occur at night while a patient is lying in bed. The management of this condition would be the same as that described above, until the doctor comes.

Hemorrhage from rupture of varicose vein.

Women suffering from enlarged, swollen veins, "varicose veins," or "varices," of the lower extremities, if not careful in keeping the limbs bandaged or supported by elastic stockings, may have hemorrhage occur by the bursting of one of these overdistended veins. The amount of blood lost may be so great as to imperil the patient's life. Should such a rupture of a vessel occur, compression should be made just below the point of rupture, to control the bleeding, until the physician, who should have been sent for, arrives, when he will resort to the measures necessary for securing against further hemorrhage.

Miscarriages.

Miscarriages are apt to recur, hence a patient who has once suffered from one, should be cautioned to take additional care of herself during any subsequent pregnancy. Any sensation of weight about the hips, with the recurrence of a "show," or slight discharge of blood, and cramp-like pains should warn her to lie down and send for her physician. Such a patient should also take the precaution to lie down as much as possible (if not in bed, on a lounge) during the time when, under other circumstances, she would have her monthly flow. Any patient having had a number of miscarriages

Prevention of miscarriages.

Precaution during menstruation.

should keep herself under the care of her physician from a very early date in the pregnancy, being placed under a regular course of treatment.

After-treatment of miscarriages.

It is well, in this connection, to speak of the importance of care in the after-treatment of miscarriages. Not uncommonly, patients, especially of the working classes, get up and go about their work a day or two after the occurrence. This is a dangerous proceeding, for, though the ill-effects may not be felt for a time, chronic disease of the uterus is apt to result.

Confinement to bed.

It is really necessary to give more time to the recovery from the effects of an abortion, than to recovery from a confinement at term, and the patient should be willing to remain in bed at least a week or ten days, or longer, if thought best by her physician. The patient should not leave her bed so long as any discharge of blood continues.

Premature rupture of membranes.

Premature rupture of the membranes enclosing the child, with a discharge of colorless liquid, commonly known as "breaking of the waters," is another of the accidents of pregnancy, and is invariably followed, within a few days, at least, by the expulsion of the child. The patient will complain of her clothing becoming wet, either by a sudden discharge of a quantity of liquid, or by a slow but continuous flow. The nurse can assure herself that this liquid is not urine by her sense of smell.

The smell of urine is characteristic. With the amniotic liquid surrounding the child, there is almost an entire absence of smell, a peculiar, faint, musty odor being alone recognizable.

Saving clothing for inspection.

It is best, in removing this wet clothing from the patient, to set it away, that the physician may judge for himself of the character of the liquid. The patient should at once lie down, not taking the erect position for any cause, not even for defecation and urination, and the physician should be sent for, with a written statement as to what has occurred. It is important that the physician should see the patient as soon after the rupture of the membranes as possible, because the sudden loss of water may have brought about changes in the position of the child which may endanger its life. The loss of the entire amount of liquid contained in the sac would cause also difficulties in the delivery, or what is known as "a dry labor."

Dry labor.

Convulsions.

Convulsions may sometimes occur during the pregnancy. The symptoms which threaten this trouble are extreme restlessness and uneasiness on the part of the patient; severe headache, often confined to one side of the head; disorders of vision, as seeing things double, or seeing but the part of an object, sometimes very imperfect vision, and occasionally absolute loss of sight; twitchings of the muscles, especially of the face, may occur. The

convulsion is ushered in by this restlessness and twitchings beginning first about the eyes and extending rapidly to the mouth, arms and lower extremities. The movements are not violent, hence the patient is not likely to throw herself out of bed. The physician should be sent for; meantime, the nurse should see that the patient is kept lying down, that her clothing is well loosened, especially about the head and chest, that plenty of fresh air enters the room, and that the patient is kept from biting her tongue. A folded handkerchief or towel slipped in between the teeth, pushes back the tongue and prevents the teeth from coming down upon it.

The patient's feet should be kept warm and head cool. The members of the family must be kept calm and prevented from meddlesome interference, for the attempt to make the patient swallow any stimulant while struggling and unconscious, may result very disastrously. Should the attending physician live too far away or be delayed in coming, the nearest physician should be sent for.

CHAPTER IV.

PREPARATIONS FOR THE LABOR.

The relations between nurse and patient begin from the time the engagement is made for a nurse's attendance upon the confinement.

Advice to patient.

The nurse is generally consulted beforehand as to the articles that will be needed at the time of the confinement and for the baby's outfit. Also, she is sometimes asked concerning the choice of a room for the labor and lying-in.

Choice of room.

The room is a most important consideration. It should be light, having the free entrance of sunlight; quiet and well ventilated. It should not be too near a water-closet; in fact, it is far better to have the water-closet out of the house entirely. There should be no stationary washstand in the confinement room; or, if this cannot be avoided, the connection with the sewer pipe should be cut off, or the holes and escape pipe in the basin plugged up, the basin being kept filled with fresh water frequently changed. No slop jar or any vessel containing wash water, discharges, etc., should be allowed in the room. An ounce of prevention, in the way of keeping disease germs

out of the room, is worth more than a pound of cure.

Mother's dress.

As regards the mother's dress, she should be advised to have a sufficient number of good-sized merino or flannel vests, to be able to change night and morning, so that the same vest shall not be worn both day and night. These are more readily changed if opened all the way down the front and fastened with tapes. The free action of the skin after delivery necessitates the use of flannel or merino to prevent chilling. If a long night-dress is worn, there is no necessity for the chemise. The night-dress, also, should be opened all the way down the front, as it renders easier for the patient the frequent changes which are necessary. Sufficient night-dresses and vests should be provided to make it possible for the clothing to be changed every day.

Abdominal bandages.

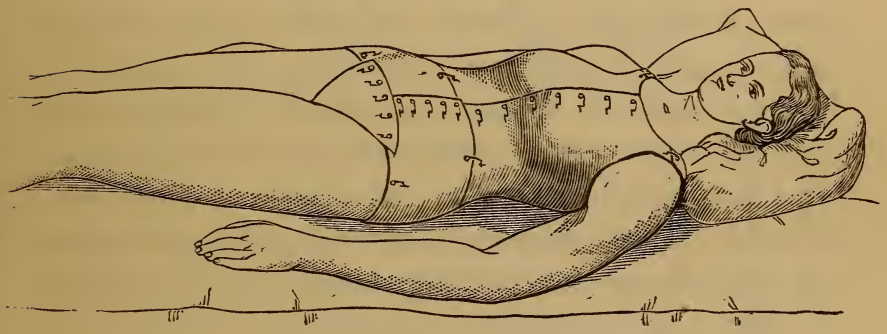
Two or three abdominal bandages, also, should be provided, either fitted to the patient's person or straight. If fitted, the bandages should be prepared when the patient is about six months pregnant, to be the right size after delivery. The bandages should extend from the pubic bone (the bone just above the external generative organs) to the breast bone, being about a half-yard wide and long enough to go once around the body and overlap one-third. It is best made of soft muslin

doubled, the seams being turned in at the edges. Large safety-pins should be provided for fastening this bandage down the front.

Where the breasts are large and pendulous, some bandage may be required for their support. An abdominal bandage may be used for this purpose, though it is rather wider than is necessary. Breast bandages.

When the physician does not require the anti-

Fig. 9.



Occlusion Dressing (Dr. Garrigues).

septic dressings, now almost universally used, at least two dozen napkins of diaper linen should be provided for the mother, as very frequent changes of the napkin are essential during the first few days after the delivery, while the discharges are free. Napkins

The antiseptic dressings used in the Woman's Hospital, of Philadelphia, are essentially the same as those recommended by Dr. Garrigues, of New York, known as the occlusion dressing. They con- Antiseptic dressings.

sist of a piece of dry patent lint, 6 x 8 inches, which has previously been rendered antiseptic by saturation in a solution of bichloride of mercury 1–1000. This is placed, doubled in its width, so as to make a dressing, 3 x 8 inches, directly over the external organs of generation. This lint is covered by a piece of gutta-percha tissue, 4 x 9 inches, which is wet in a 1–4000 solution of bichloride of mercury.

Perineal pad.

These dressings are kept in place by a napkin of sublimated cheese cloth, 18 inches square, folded to form a diagonal, 5 inches in width, within whose folds a pad of oakum is enclosed. The napkin is tightly fastened to the abdominal bandage, both anteriorly and posteriorly, by means of safety-pins, and the access of air to the vagina is thus prevented. These dressings are changed at least once in three hours, the dressing removed being at once burned. It is seldom necessary to continue the dressings longer than two weeks. They should be kept up, however, so long as the discharge persists.

Quantity needed.

After the above statement, it will be seen that a nurse should have the patient obtain of each of the articles comprising the dressing the following quantity: Cheese cloth, 12 yards; gutta-percha tissue, 1 yard; patent lint, 2 yards; oakum, ½ to 1 pound.

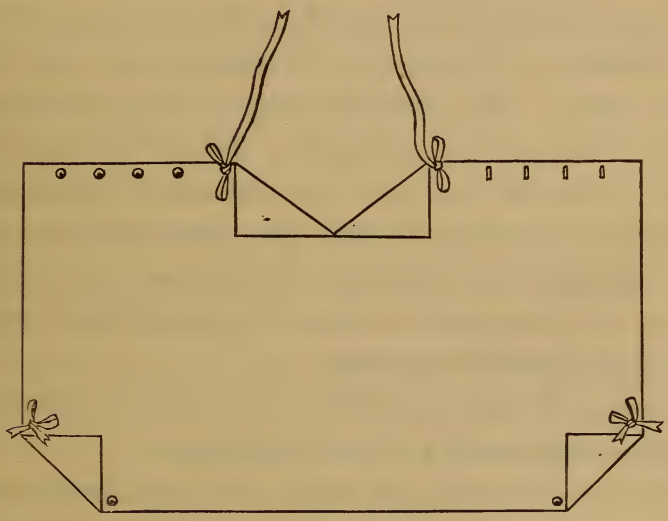
Where obtained.

The cheese cloth may be obtained at any dry-goods store, and prepared by first thoroughly wash-

ing with soft-soap and boiling, and then wringing it out in a solution of bichloride of mercury 1–1000. The patent lint should be rendered antiseptic in the same way. The gutta-percha tissue, patent lint and oakum may be obtained at a drug store; the gutta-percha tissue may be more readily obtained directly

Preparation of cheese cloth and lint.

FIG. 10.



Nightingale Wrap.

from a rubber store, where the syringe also may be bought.

In winter it is well for the mother to be provided with a "nightingale wrap." This is made of two yards of flannel of ordinary width. A straight slit, six inches deep, is cut in the middle of one side,

Nightingale wrap.

the points so formed being turned back to form a collar. The corners farthest from this collar are also turned back to form cuffs. The whole may be bound or pinked around the edge and fastened by means of buttons or ribbons.

Rubber cloth for confinement bed.

For the confinement bed the patient should provide two pieces of rubber cloth, a yard and a half square. For a single bed two rubber army blankets may be used, if, as in the maternity practice in the Woman's Hospital, it is desired to cover the whole bed. The arrangement of the bed will be explained in a later chapter. White rubber gum-cloth is the best when it is obtained in the piece. If the patient is poor, table oil-cloth may be used; it is cheaper and answers the purpose as well, or layers of newspapers tacked together will make very good temporary pads.

Floor oil-cloth.

A piece of floor oil-cloth is the best protection for the carpet at the side of the bed.

Precautions.

Rubber-cloth should never be used but for one confinement. The rubber cracks when folded and put away and no longer serves its purpose of protecting the bed. Then, too, it is very important to be sure that everything about the confinement bed is perfectly fresh and clean. Hence, a rubber-cloth used for confinement should neither be borrowed nor lent.

Sleeping on rubber-cloth makes a person per-

spire, hence it is desirable to get rid of it as soon as one can. It is seldom necessary to use it after the fifth or sixth day. Effect of sleeping on rubber cloth.

Other articles necessary to have on hand will be half a dozen old sheets, about a dozen towels, a new syringe (a fountain syringe, large size, is the best), a bed-pan (French pattern), nail-brush, white Castile soap, a jar of cosmoline or vaseline. Other articles for confinement room.

I desire, in this connection, to emphasize the fact that the syringe should be a new one. This is an antiseptic precaution. Hence, advise the patient strongly against the use of any syringe which may have been used for other purposes, however well it may work. Of course, the borrowing of such an article from a neighbor or friend should be strongly discountenanced. The syringe.

Regarding the baby's clothes—if they are made too elaborate they will not be washed often enough, hence they should be *plain*. As the depressing influences of cold are very injurious to babies, the clothing should be *warm*, hence a flannel garment with long sleeves and high neck should be worn next the skin—the thickness varying with the season of the year. The activity of the life processes make it important that every organ of the body shall be unimpeded in its action and free from pressure, hence the clothes should be very *loose* and *light* in weight. Infant's clothing.

Outfit for baby.

The only articles absolutely needed to constitute an outfit are, 1st, a soft flannel shirt, with high neck and long sleeves, opened in front. This is

The under-vest.

better than the merino vests or the knit shirts, which shrink on washing, and are then difficult to put on and take off. 2d. A binder, or bandage of fine, soft flannel, four inches wide, and long enough to go around the abdomen once and lap over about one-third. This should be made without a hem, the raw edge being overstitched to prevent raveling.

The binder.

The binder is best fastened by means of two pieces of tape attached to one of its edges.

This arrangement does away with the necessity for pins in fastening the binder, the pieces of tape being simply wound around the body to secure the

Knitted wool band.

binder and tucked in at one edge. Some prefer the knitted wool band, made of single zephyr and knitted in the ribbed stitch, as wristlets or mittens are often knit, to permit of greater elasticity. These bands are made a little narrower in the centre than at either extremity, so as to be held in place better. They are made perfectly circular, just like a wristlet, and are so elastic that they can readily be drawn

Napkins.

up over the limbs and adjusted to the body. 3d. A napkin of cotton or linen diaper is the best; Canton flannel makes a very poor baby's napkin, as it becomes stiff when washed. Napkins are generally made too large for a new-born baby, and require to

be folded into too many thicknesses. A napkin, which when folded once is half a yard square, is of ample size. The number of napkins supplied should be generous, so as to permit of frequent washing and thorough airing. Napkins should always be fastened by safety-pins. For the protection of the outer garments from dampness due to frequent urination, it is well to have a second napkin folded and laid beneath the baby's hips. The use of rubber-cloth over the napkin for this purpose is much to be condemned, as it overheats the parts and makes the skin tender. 4th. A flannel slip of heavier or lighter texture, according to the season, serves the purpose both of petticoat and dress. This should be made just long enough to cover the baby's feet—about twenty-five inches from neck to hem, and should be fastened in front. The ordinary fashion of making a baby's clothes very long is objectionable because of the greater weight of the clothes preventing free movement of the child's limbs and the development of its muscles. The object of fastening the clothing in front rather than in the back is to avoid the necessity of the baby's lying on the uneven surfaces produced by buttons, tapes and hems, which no doubt are often a source of discomfort to its tender skin. 5th. Knit woolen socks are necessary to keep the baby's feet warm, and it is well to have them

Protection of clothing from dampness.

Flannel slips.

Length of garments.

Socks.

extend pretty well up the leg, reaching even to the knee; as cold feet are often an exciting cause for colic.

The above are the only essential articles of clothing for a baby. Should the mother prefer, for the sake of effect, to see her baby in white muslin, a slip of muslin can be worn over the flannel slip. These garments do away with all waistbands and the constriction of the chest thereby induced. Should the garments be made with waistbands, they should be supported from the shoulders by means of straps, or armholes should be made in the bands just as in the case of an older child; they will not need then to be drawn so tightly around the child to be retained in place.

Muslin slip.

Support from shoulders.

Blanket wrap.

A blanket is not needed to wrap the baby in, in a room at the temperature of the lying-in room—from 68° to 70°; but should it be carried from one room to another, or when it sleeps, a blanket, or some wrap, ranging in weight with the season, will need to be thrown over it.

Cambric cap.

When a baby has but little hair on its head, and shows a tendency to catch cold readily, a plain cambric or light flannel cap may be employed as a head covering. This is a preventive against catarrhal troubles affecting the nose and throat.

A recent journal has described an outfit for babies which has obtained much favor among mothers,

"Gertrude" suit.

It is called, I believe, the "Gertrude Suit," and consists of three garments; the first, or undergarment, is made of soft flannel, and is long enough to extend from the neck to ten inches below the feet. The next garment, cut in the same way, but a half inch larger and five inches longer, is made of muslin. Over these comes the "slip," also Princess style, and the only one of the garments with long sleeves. (This is the most objectionable feature of the suit; a baby's arms should be well covered.) It has a longer skirt than either of the other garments. All are fastened behind by small buttons. These three garments are put together and all slipped on to the baby at one time, facilitating the process of dressing very much.

Advantages of Woman's Hospital outfit.

In our opinion, however, this suit has not the same advantages as that worn in the Maternity of the Woman's Hospital of Philadelphia, and first described. The fastening of the clothing in front, the fewer number of articles comprising the wardrobe, and the fact that they may be very easily taken off and put on, while they meet all the requirements of warmth, looseness and lightness, make this outfit preëminently a comfort to the baby.

Articles for the baby's basket.

The articles provided for the baby-basket may be the following:—

Three or four pieces of linen bobbin, about eight inches long.

A pair of blunt-pointed scissors.

Large and small safety-pins.

Several small squares of soft linen, about four inches square, for dressing the cord, and two inches square, for washing the eyes and mouth.

A soft hairbrush.

A powder box and puff, with lycopodium or fine starch powder. (The scented powders are often irritating.)

A small jar of cold cream.

Two soft towels.

A full suit of clothes, as described above, for the baby.

A woolen shawl or wrap.

CHAPTER V.

SIGNS OF APPROACHING LABOR—THE PROCESS OF LABOR.

Indications of approaching labor.

Certain changes take place during the latter part of the ninth month which indicate that labor is approaching. One of these is the sinking of the abdominal enlargement. The upper part of the womb, which has at the beginning of the ninth month been high enough to reach the pit of the stomach, comes down gradually to a point about midway between the extremity of the breast bone and the navel. This sinking of the womb is known as "descent" or "settling" of the child, and indicates that the head of the child, which is ordinarily the part to be born first, has stretched the lower part of the womb and is finding its way into the cavity of the pelvis, through which it must pass in the birth. Great relief to the mother results from this descent of the womb, as the lungs are no longer pressed upon to the same extent as before. The change in the position of the womb produces, however, an increased amount of pressure on the lower portions of the body. Swelling of the lower limbs is apt to result in consequence of this, and

Sinking of abdominal enlargement.

Relief in breathing.

Swelling of lower extremities, from pressure.

Piles.

walking is rendered difficult. Piles or hemorrhoids are apt to form, and irritability of the bladder to exist.

"False" pains.

During the last two weeks of pregnancy patients are apt to suffer from what are known as "false pains." These are cramp-like pains, so much like labor pains that patients are often deceived by them, and led to imagine that the labor is really coming on. They are called "false pains" to distinguish them from the pains of labor, which are known as "true pains." The way to distinguish between the two kinds of pains is to observe whether there is any regularity as to the time of their occurrence; also, whether the interval grows shorter, and whether, with this shortening of the interval, the pains grow stronger. "False pains" are irregular in their occurrence, while "true pains," though starting perhaps at quite long intervals, as three-quarters of an hour or a half-hour apart, gradually come nearer together and grow stronger. "False pains," also, are generally located in the abdomen. "True pains" more frequently start in the back, coming forward to the abdomen and extending down the thighs. A strong "pain" is apt to be followed by one or two weaker pains. A nurse, if in doubt as to whether the pains are real labor pains or not, should have the physician sent for, who will make an examination to learn

"True" pains.

what the condition of the parts may be. A sign that makes it probable that the labor is really coming on is the appearance of what is known as the "show," a discharge of mucus, tinged with blood, which comes from the mouth of the womb, and indicates that the stretching of the mouth of the womb is taking place.

Stages of labor.

The whole process of labor is divided into three stages. The first is the stage of dilatation, when the mouth of the womb is stretching so as to allow the child to pass through it. With women who have never borne children, this stage lasts on an average fifteen hours, while it is a very variable period for those who have previously borne children—sometimes lasting but three or four hours; the average time given is from seven to eleven hours.

First stage.

Second stage.

The second stage of labor begins after the completion of the stretching of the mouth of the womb, and ends with the birth of the child. For women with their first birth, this period lasts from an hour to an hour and a half; with others, from twenty minutes to an hour.

Third stage.

The third stage of labor includes the interval between the expulsion of the child and the coming away of the afterbirth—on an average a half an hour or twenty minutes.

The time for the entire labor, in a case where it is the first birth, is about seventeen hours. In

cases where other children have previously been borne, the average is from eight to twelve hours.

"Bag of waters."

The "bag of waters" is a sac of membranes in which the child is enclosed. Within this bag is found a liquid in which the child floats. The presence of this liquid between the child and the walls of the womb serves to protect it from the effect of falls or blows to which the mother may be subjected, and favors the regular development of the child. When labor begins with the stretching of the mouth of the womb, a small portion of this sac is pushed out like a wedge beyond the rim of the dilating orifice, and helps thus in the dilatation. When the waters break early, labor is much more tedious because the even pressure of the bag of waters on the mouth of the womb is lost, and the stretching cannot, therefore, go on so rapidly and easily. As the mouth of the womb opens, the pouch formed by the bag of waters is pushed further and further out into the vagina, the pains become stronger and the pouch at last bursts, letting the water escape. This is "the breaking of the waters," called by physicians the "rupture of the membranes," and it should not take place before the mouth of the womb is fully open.

Premature rupture of the membranes.

Labor, however, sometimes begins with this loss of water, as has been said in the chapter on the accidents of pregnancy.

The pains of the first stage of labor are cutting, grinding pains, very hard for the patient to bear, and causing her to be nervous and irritable.

Cries of patient in labor.

The cries made by the patient during the first stage of labor are very different from those of the second stage. They are cries of complaint and suffering, while during the second stage they are rather groans accompanying a bearing-down effort on the part of the patient. The pains of the second stage are called "forcing" or "bearing-down pains." An experienced woman will know, as soon as these pains begin, that the doctor should be on hand as soon as possible; and she should send him a message which will lead him to realize the necessity for coming at once.

Change in character of pains.

The pains during the second stage increase in strength and frequency, the patient holds her breath and bears down forcibly with each pain. The effort causes her to become flushed and heated, and to break out into perspiration.

Preparation of birth-track for expulsion of child.

During this time the head of the child is forced down the middle passage, or vagina, to the external opening. At the end of each pain the head goes back a little, so that the birth-track may be very gradually stretched. With women who have previously borne children, there is often so much relaxation of the tissues forming this passage-way that the head of the child may be expelled by a

single pain. This sudden birth of the head often causes very serious tears.

Birth of child's head.

After the external opening has been sufficiently stretched by the slow advance of the head, it gradually works out altogether, and then the worst pain is over. There is then a short interval of rest before the remainder of the body is born, the shoulders coming first by a strong pain, after which the lower part of the body easily slips out.

Expulsion of rest of body.

Expulsion of afterbirth.

The contraction of the womb, or "pains," now cease altogether from five to twenty minutes or even half an hour, when there is again a little pain and the afterbirth comes.

Liability of accidents occurring.

The above description is an account of what labor should be if perfectly natural. There are many emergencies which may arise in any case, hence, for the sake of both patient and nurse, every effort should be made, even in what promises to be a normal case, to have the doctor on hand in time.

Importance of having physician to bear the responsibility.

CHAPTER VI.

DUTIES OF THE NURSE DURING LABOR.

Call for nurse.

With the occurrence of the symptoms which indicate the onset of labor, the nurse, if not already in the house, should be immediately sent for.

Necessity for prompt attention to call.

A nurse should give very prompt attention to such a call, and lose no time in getting to the patient, as many women pass through the different stages of labor very rapidly.

Appropriate dress.

On arriving at the patient's house, the nurse should put on her working-clothes, which should always be scrupulously clean and of wash material. The uniform worn by the nurses of the Woman's Hospital, of Philadelphia, consists of a blue and white striped seersucker dress, very plainly made; a large plain white apron, with bib, well protecting the dress; over-sleeves, of same material as apron, for the protection of the dress-sleeves, and a white muslin Normandy cap. This makes a plain yet attractive dress—which is a matter of considerable importance to the patient, who gets her first impressions of her nurse through her personal appearance.

Importance of neatness in personal appearance.

Woolen dresses, or those made of any material which will not bear frequent washing, should never

Importance of wearing wash dresses in nursing.

be worn by a nurse. There is always the possibility—in fact, the probability—of such a dress having been worn during her attendance upon some previous case of illness, in which case it would greatly endanger the patient. The feeling of the wash dress as it comes in contact with the patient's skin, when the nurse lifts her or works about her, is much more agreeable than that of woolen stuffs. Then, too, it is more business-like, looks more like work, and gives the patient the comfortable feeling that a nurse means to help her, rather than to sit around as a fine lady, attending simply to the daintier parts of attendance upon the sick. I introduce this subject here because I find that many graduate nurses, in breaking their direct connection with their training-schools, set aside as a matter of small moment this requirement concerning dress—a requirement in which a most important principle is embodied and which demands the hearty support of every truly scientific nurse.

Importance of dressing quickly.

Another important point I wish to mention here, and that is, that a nurse should learn to dress herself quickly, so that she can slip into the necessary garments in a very few minutes, and thus, by her promptness in reporting for duty, awaken the confidence so essential to her management of patients.

On entering the room where the patient is to be

found, while exchanging the necessary greetings, the nurse should exercise her powers of observation, and rapidly take in the state of affairs, forming her opinion as to how far the labor has probably progressed. Should "pains" be occurring, she will recognize, from what has been said in a preceding chapter of the pains characterizing the different stages of labor, whether the patient is really in labor or not, also, how much time is probably left for the making of preparations. She can learn from the patient, in the intervals of her suffering, when the pains first began, how often they occur, whether the waters have broken, etc., so that she may know what message to send the doctor, should the necessity exist for so doing. After this duty has been performed, if labor has really begun, the nurse should give herself to the preparation of the patient and the room for the confinement.

First duty on entering room.

Observation of "pains."

When pains began.

Sending for the physician.

Preparation of the patient: The nurse should inquire of the patient whether her bowels have been freely moved recently. If not, a simple enema of soap and water may be given for the purpose of clearing out the lower bowel and making the second stage of labor easier and cleaner.

Preparation of patient.

Attention to bowels.

Inquiry should be made as to whether the patient has passed water freely. If not, she should be urged to make the attempt, and, if not successful, the physician should be notified.

Attention to bladder.

Warm bath. Fresh clothing.

It is desirable, if there is time, to have the patient take a full warm bath and put on entirely fresh clothing.

Antiseptic vaginal injection.

A vaginal injection of some antiseptic solution may then be given, and the parts about the external generative organs washed off with an antiseptic solution. In the Woman's Hospital the vaginal injection consists of a solution of bichloride of mercury 1–8000. The external parts are washed off with a similar solution of 1–2000.

Preparation of antiseptic solutions. Bichloride of mercury.

Tablets of bichloride of mercury may be obtained at any apothecary's, one of which, if added to a pint of water, will give, as a rule, a solution of 1–1000, from which solutions of varying strength may be made up by the addition of more or less water. Thus, on adding seven parts of water to one part of the bichloride solution 1–1000, a solution of 1–8000 may be obtained. It is always desirable that the nurse should have a little porcelain or agate-ware gill measure, by which she can readily and quickly prepare these solutions. If tablets cannot be obtained, powders of 7½ grs. each of bichloride of mercury, if added to a pint of water, will give a solution 1–1000.

Creoline.

Creoline, a coal-tar preparation, four times stronger in its antiseptic properties than carbolic acid, may be used in a two per cent. solution, in place of bichloride of mercury. To make this,

2½ drachms of the creoline should be added to the pint of water. Creoline, though not so strongly antiseptic as bichloride of mercury has greatly come into favor of late, both because it does not have the same corroding effect on instruments which may be used, and because there is less liability of poisoning than in the use of bichloride of mercury.

Danger of poisoning.

A nurse should never lose sight of the fact that the corrosive sublimate (bichloride of mercury) tablets are a deadly poison, hence there should be no neglect as to care in their handling.

Carbolic acid.

Carbolic solutions are used in place of either of the above by some physicians. A two per cent. solution of the latter may be made up in the same way as the creoline solution.

Position until after examination.

When the patient seems to be in active labor, the nurse should keep her lying down until after the physician has made an examination. He will then state whether the patient may sit up or walk about the room.

Arrangement of hair.

Because of her long confinement to bed the hair of the patient should be arranged so that it will be most comfortable and not readily tangled. The best arrangement is that of parting the hair down the back of the head and braiding it into two plaits —one behind each ear. This leaves a smooth surface at the back of the head to lie upon.

Confinement outfit.

The outfit of the patient during the labor should consist of a merino vest, long night-dress, a pair of large, roomy, open drawers, and a pair of stockings. While walking about the room, and until the second stage of labor begins, she can wear a wrapper over the rest of her clothing and have on a pair of bedroom slippers, which can be easily slipped off when she needs to lie down.

Necessity for examination by physician.

The patient should be told by the nurse of the necessity for an examination by the physician, particularly if this is her first labor. When the physician comes, the patient should be placed on the bed, near its edge, lying on her back or side, as he may prefer, with her limbs drawn up toward the abdomen. Her clothing should be lifted above the hips, and a sheet, or some light covering, used to protect the lower part of the body from exposure. A chair should be placed for the physician on the same side of the bed, close to its edge, facing the patient as she lies; a jar of cosmoline or vaseline should be brought him, and all the necessary materials provided for the proper cleansing of his hands both before and after the examination; soap, nail-brush, warm water and towels, and some disinfectant solution, as a bichloride of mercury solution of the strength 1–2000, or creoline, a drachm to the pint of water.

Preparations for this examination.

Cleansing of physician's hands.

Preparation of room.

The preparation of the room and bed will next require the nurse's attention.

Systematic arrangement of articles needed.

These preparations should be made as quietly as possible. The nurse should have learned beforehand where things are, and she should have had them so arranged that but little will need to be done at the time, except to put them where they will be most convenient for use. It is well, if the patient is walking about, to have her go into the next room while the bed is made up.

Preparation of a single bed.

A single bed is always the most convenient in the management of a patient, but such are rarely found in private houses. The preparation of a single bed would be as follows: First, the mattress —preferably of hair—covered by a pad and rubber-protective across the middle of the bed, or covering the bed entire (rubber army-blankets are used in the Woman's Hospital for this purpose). The under-sheet covers this rubber, and a draw-sheet—a sheet folded four times in its length and placed across the portion of the bed upon which the hips would rest—comes next. (The folded side of the draw-sheet should be toward the head of the bed). This constitutes the first dressing, or what is known as the "permanent bed." The different articles constituting this dressing are securely fastened down by safety-pins. Over the "permanent bed" comes the "temporary bed," consisting of a second

"Permanent bed."

"Temporary bed."

gum blanket, covering the entire bed, a second under-sheet and draw-sheet. Covering these are the upper sheet, blanket and spread.

After the confinement, the "temporary bed" can be drawn from under the patient, leaving her lying on the "permanent bed." The change is accomplished with much greater ease for both patient and nurse than the changing of the various articles separately.

Preparation of double bed.

The double bed found in most private houses is arranged as follows: First, the ordinary dressing of the bed, the hair-mattress, pad, rubber-protective, under-sheet and draw-sheet. Upon top of this dressing, at the lower right-hand corner of the bed,

"Temporary dressing."

a "temporary dressing" should be arranged, about a yard and a half square, consisting of a rubber protective, or the paper pad before described, securely fastened down to the bed beneath, and covered, if rubber, simply by a folded sheet, likewise fastened down by safety-pins. If the paper pad is used, an old comfortable or blanket will be needed beneath the sheet. The pillow for the patient should be placed at the upper and inner corner of this square. After the delivery, she can be lifted to the upper part of the bed, and the "temporary dressing" removed.

The sheet, blanket and spread which are to serve as her covering after the delivery can be kept from

soiling during the labor if folded upon themselves several times and carried to the extreme edge of the left side of the bed. Another sheet and blanket may be used as temporary covering during the delivery. It is so important that a patient shall be moved as little as possible immediately after the labor, because of the tendency to bleeding produced by motion, that the nurse should study carefully the best methods of protecting patient and bed from soiling, so that it will be necessary to do but little in the way of changing the clothing.

Temporary arrangement of covers.

The piece of floor oil-cloth must be spread at the side of the bed, extending from a foot to a foot and a half under the bed.

Protection of floor at side of bed.

There should be a bureau with a set of drawers, or a closet, with shelves, in the room, given up to the nurse for the keeping of the various articles she may need, and these articles should be conveniently arranged so that there may be no confusion in obtaining them when required at any time. One drawer or shelf should contain sheets; another towels and napkins and soft, clean muslin or linen rags, to be used as napkins during the delivery; a third should contain changes of underwear for the patient, and a fourth the baby's wardrobe.

System in arranging articles in bureau drawers.

A change of clothing for the mother should be placed—if it is warm weather—in the sun by a

Change of clothing for mother.

window; if in winter, by the register, or stove, so as to be dry and warm should it be needed.

Articles for baby's basket.

The baby's suit should in the same way be aired and warmed. The baby's basket should be placed on a chair or stand near the register, with all the necessary articles for its toilet and bath—a baby's bath-tub or an ordinary foot-tub, soft towels, nurse's flannel bathing-apron, a little rendered lard in a jar, etc. Two pieces of bobbin, each eight inches in length, should be put in a little vessel containing some bichloride solution, 1–4000. These, with a pair of blunt scissors, should be placed where they can be conveniently reached for the tying of the cord. Some small squares of soft muslin or linen should be placed where they will be convenient for the immediate cleansing of the child's eyes after expulsion of the head. A flannel blanket or good warm flannel petticoat should be provided for receiving the child upon its birth. The baby's crib should also be prepared for its reception.

Receptacles needed.

Beneath the bed there should be two chambers —one for urine and one for the afterbirth, or a tin basin may be provided for the latter.

For doctor's instruments.

Some receptacle should be in readiness for the doctor's instruments, should they have to be used. The small pitcher which ordinarily accompanies the modern chamber sets serves this purpose very nicely.

A vessel for the patient to vomit in should be on hand—a chamber, or even chamber-lid, will do very well. Receptacle for patient to vomit in.

A basin filled with a warm solution of bichloride of mercury, 1–4000 or 1–2000, should stand near the bed, so that the nurse or physician may repeatedly cleanse the external organs of generation of all discharges during the progress of the labor. The solution in this basin should be frequently changed. For antiseptic solution.

A sufficient number of soft linen or muslin rags will also be necessary for this purpose. Soft linen or muslin pieces.

Agate, porcelain or china basins are necessary when bichloride solutions are used. For creoline ordinary tin basins will do. Kind of basins needed.

The nurse should never allow anything from the kitchen to be pressed into service for such an occasion. The indiscriminate use of pans, basins, cups and saucers is certainly vulgar, to say the least. The "eternal fitness of things" should never be lost sight of.

A urinal, or a soap-cup, which is a good substitute; a silver catheter, and an English rubber catheter, No. 8 or No. 9; a bed-pan; and the other receptacles for the various purposes above referred to, may be placed for convenience beneath the bed. Other articles needed.

A towel-rack near by should contain at least half a dozen fresh towels.

A few napkins, a supply of soft rags, a jar of cos-

moline, a waste-bucket or slop-jar, with a lid, should be found in the room; and an abundant supply of hot and cold water.

Plentiful supply of hot water.

As soon as the patient is known to be in labor, the nurse should go to the kitchen to see that the fire is good, and that plenty of water is put on to boil. An arrangement should also be made by which some member of the family will be prepared to respond to the nurse's call for more hot water when it is required. The abdominal bandage for the patient, with a set of the dressings and a pin-cushion containing safety-pins, should be placed on the stand beside the bed.

Stimulants.

A bottle of whiskey or brandy and one of harts-horn should be provided.

A pitcher of cool water and a tumbler should be found in the room, as the patient may need a refreshing drink during the progress of the labor. A feeder is best provided for the patient's use, as she can then drink lying down.

Arrangement of patient's clothing.

The arrangement of the patient's clothes to keep them from soiling during the expulsive stage of labor, will require some care on the part of the nurse. The night-dress or vest should be folded or rolled up beneath the arm-pits and fastened with safety-pins over the right side of the chest. If the patient wears large drawers, no further protection than the cover-sheet may be necessary. Some pre-

fer having a sheet adjusted around the waist, above the abdomen, and pinned under the clothing to the right side, the long end of the sheet which remains, and which should be the anterior part, is plaited up and fastened also beneath the right arm by means of safety-pins. The sheet thus resembles a skirt opened at the right side.

Duties of nurse during first stage of labor.

Encouragement.

Avoidance of bearing down efforts.

During the early stage of labor the nurse will need to encourage the patient, and by a sensible, quiet, yet cheerful bearing keep her strong. It is of no use for patients to hold their breath and bear down during each pain in this stage, and nurses should never urge their patients to do so. It should be left to the physician to decide when bearing-down efforts are desirable. The pressure of the nurse's hand upon the back during a pain often gives great relief to the patient, while the occasional bathing of the face and hands with cold water is refreshing. Frequent sips of cold water may be permitted.

Pressure on back.

Nourishment.

Nourishment in the form of beef-tea, gruel, milk and tea may be given from time to time if the labor be long. No stimulants should be given without the direction of the physician.

Vomiting.

Vomiting is a troublesome though not necessarily a dangerous symptom during delivery. In fact, the relaxation it produces is often desirable. If it is excessive, however, a little iced soda water may check it.

Cramps.

Cramps in the lower limbs are a very frequent accompaniment of the second stage of labor. Relief may be obtained by stretching the limb straight out, gently rubbing the painful muscles, or grasping and holding them.

Exclusion of company.

Friends and neighbors should, if possible, be excluded from a confinement-room. Their injudicious tales and expressions of sympathy are often absolutely painful. The nurse has to manage this with great tact. She can generally succeed best by stating to the friends that it is the physician's wish she should do so, and her relations toward the physician require that she should implicitly observe his directions. If the nurse does not allow herself to become familiar with her patients, but maintains a quiet dignity in the carrying out of her directions, her requests will generally be observed.

Tact.

Tact is a magic wand by which human beings can accomplish miracles in the way of subduing the obstinate. Happy is the nurse who possesses it! The best rule for acquiring it is the Golden Rule, "Do unto others as you would that they should do to you." A strict observance of this will insure a kindness of tone and manner in the making of requests which will win consent when it would not otherwise be granted.

One of the most important duties of the nurse during the confinement is the frequent changing of

napkins, draw-sheets, towels, etc., used about the patient. Also the frequent renewal of the antiseptic solutions to be used about her, or for the doctor's hands. Changing of napkins and other antiseptic measures.

Antisepsis means, literally, "against poisoning," and implies the careful removal of all sources of poisoning, such as would come from decomposing blood and discharges, or dirty articles. The physician's and nurse's hands, therefore, require a special preparation for the labor in their thorough disinfection. During the course of the labor the hands should be thoroughly cleansed with a bichloride solution whenever they have touched anything unclean, or whenever they come in contact with the genital organs. Antisepsis.

The patient may be delivered on her back or lying on her left side. When the physician desires the change of position, the nurse must help the patient to turn on her side and bring her hips close down to the edge of the bed. The upper or right limb will then have to be supported by the nurse, in order to well separate the thighs until the delivery is effected. (When there is insufficient help, a pillow may be used between the knees.) She will have to get on the bed close to the patient for this, and hold the leg at knee and ankle. After the child has come, she should help to turn the patient in the bed; bring a flannel wrap to put the Position for delivery. Position during third stage of labor.

Preparations for receiving child. Protection of mother. Cleansing of baby's eyes.

baby in as it lies on the bed before the tying of the cord, and throw a covering over the mother's chest. She should then wipe the baby's eyes with a fine, soft piece of linen dipped in tepid water, or a saturated solution of boric acid; should bring the doctor the scissors and bobbin; and have ready a sheet for receiving the child, and a vessel for the afterbirth. She should hold the sheet doubled upon her outstretched arms, the side toward her being held up by her chin. On receiving the baby with its flannel covering, she allows the edge of the sheet held up by her chin to drop down over the child. She then folds over the hanging ends, so as thoroughly to cover the child, and places the little bundle in a crib, to await further attentions, until the mother has been made comfortable. Should the child breathe imperfectly, the physician will give it his own attention, or direct the nurse what to do.

Removal of child.

Care of afterbirth.

The vessel containing the afterbirth, if the latter has been detached from the child, may be placed temporarily under the bed, to await the physician's examination. If the cord has not yet been tied, the vessel may be put in the crib with the baby. Many physicians do not tie the cord or navel-string until there is no further pulsation in the vessels.

Cleansing mother after labor.

Should the physician not desire to do so, the nurse should next attend to the cleansing of the

mother's external parts by means of soft cloths dipped in a solution of bichloride of mercury 1–4000.

Many physicians make a practice of using a vaginal injection of some disinfectant solution immediately after delivery. It will be the nurse's duty to prepare this should it be called for. The "temporary dressing" should be removed from the patient, and she should be gently lifted on to the upper portion of the bed. The binder and dressings must next be applied.

Vaginal injections.

Removal of soiled clothing.

Application of binder and dressings.

"The binder must be rolled up to half its length, and the rolled portion passed beneath the patient's back. It is then caught on the other side and unrolled, straightened so as to be free from wrinkles, and made to encircle the hips tightly. The overlapping ends are then fastened together by means of safety-pins down the front." The middle portion of the bandage should be tightened first, as the firmest pressure should be directly over the upper portion of the womb. The lower portion of the bandage is fastened next, and the pins in the upper portion placed last, as this does not need to be so firmly applied.

The antiseptic dressings should next be applied in the order described in a preceding chapter. The napkin is spread out and fastened to the abdominal bandage anteriorly, so as to fit over the convexity

of the upper portion of the external organs of generation, and extend from groin to groin. Posteriorly it is fastened to the abdominal bandage by but one safety-pin. This makes an "occlusion dressing."

Making patient comfortable.

The patient's body-clothing should then be unfastened and drawn down (her drawers and stockings should have been removed with the "temporary dressing"). The coverings of the bed are drawn up over her, and she is allowed to lie quietly until the nurse cleans up the room and makes preparations for washing the baby.

Physician's "watch."

The physician generally remains with the patient an hour after the delivery, taking her temperature and pulse, and watching the condition of the womb, to insure against danger of hemorrhage from want of proper contractions.

Nurse's duties after the physician leaves.

After the doctor leaves, this duty devolves upon the nurse, who should examine the dressings frequently to see that the bleeding is not too profuse, and place her hand over the lower part of the abdomen to feel the womb, which, if properly contracted, should be a round, hard body about the size of a child's head, immediately above the pubic bone, and not reaching higher than the navel. The consideration of the accidents of labor, and the care of the infant, will be treated in other chapters.

CHAPTER VII.

ACCIDENTS AND EMERGENCIES OF LABOR.

Absence of physician during delivery.

Women who have borne children before are apt to have rapid labors, hence a nurse should be on her guard when in attendance upon such a patient, watching for the symptoms of approaching labor, and notifying the physician earlier than she would feel warranted in doing with a patient expecting her first confinement.

Occurrence of pains.

As soon as the nurse suspects that labor pains have begun, she should put her patient to bed.

Second stage of labor.

When "bearing-down" pains begin, the patient should not get up even to use the chamber. A bed-pan should be used. The patient should not be allowed, when the pains come on, to catch hold of anything to increase the force of her effort. Above all, the nurse should not *tell* her to bear down.

Lateral position.

The strength of the pains is somewhat modified if the patient is kept on her side. This position is also safer for the perineum, which does not so directly get the full force of a pain as when the patient lies on her back. The left side is preferable, as it enables the nurse to use her right hand to greater advantage.

Care of perineum.

Should the child's head come down so that it can be seen at the entrance to the vagina, the nurse should place herself on the right side of the bed, and as the patient lies on her left side, with the hips well drawn to the edge of the bed, the nurse should

Support of child's head.

gently hold back the baby's head during a pain. This is to prevent a tear from occurring by the sudden expulsion of the head. She should favor the gradual stretching of the parts. She should avoid interfering in any way, as in making efforts to enlarge the opening by stretching it with the fingers, etc. All such attempts will inevitably result in harm. When the opening is sufficiently stretched,

Delivery of head.

the head will slip out of itself. The passage of the child's head is rendered easier if the patient's knees are separated by a pillow. The nurse should simply continue to support the head with her hand, and as soon as the head is born her left hand should be placed over the mother's abdomen, rest-

Grasp of uterus.

ing upon the womb, which may be distinctly felt through the abdominal walls. The pressure of the hand acts as a stimulant to the womb and induces good contractions. A tendency to hemorrhage is thus averted. The right hand of the nurse should support the child's head. With one finger she

Loosening of cord.

should feel around the baby's neck to learn whether it is encircled by a loop of the navel-string or cord. If so, she should gently pull first on one side and

then on the other of the cord, to see which end gives. This loosens the pressure and prevents the stoppage of the circulation in both cord and child's neck.

Delivery of body.

When, after a pause, the pains start up again to expel the rest of the child's body, the nurse had better have some one instructed how to hold the womb properly, as both her own hands will be needed to receive the body of the child as it is expelled. The mother herself may be shown how to make this pressure over the womb. If there is no one to make this compression of the womb, the nurse should try to manage the baby with one hand and keep up the pressure over the lower part of the abdomen with the other.

Care of infant.

The flannel wrap for the baby may be put close up to the mother's hips, and the nurse can manage with one hand to lay the baby down on this, cover it up, and draw it far enough away from the mother's hips to keep it out of the discharges. She should see that the baby's mouth is free from liquids. The little finger of her right hand acting as a hook, the end of the finger should be passed in at one corner of the baby's mouth and out at the other corner, thus scooping out any liquids that may have been drawn in during the birth. She should be careful to see that the cord is not dragged upon and that the baby breathes well. Babies usually cry lustily just after the

birth. This should be a welcome sound to both nurse and mother, as it insures expansion of the lungs. Occasionally, a child will be born with what is known as a "veil" or "caul," a portion of the membranes, drawn tightly over the face. This may cause death from suffocation unless it is quickly seized by the fingers and torn off, so as to free the child's mouth and nose.

The "caul."

Resuscitation of infant.

If the baby is apparently lifeless when born, besides the measures spoken of for clearing its mouth of liquids, it may be turned over on its face, to empty out the discharges from the air-passages, and efforts should be made to start breathing. The head of the child should be lowered, to keep as much blood there as possible.

The back may be slapped—several short, quick slaps given over the buttocks. A stream of cold water may be poured on the chest just for a moment, and this repeated several times.

Artificial breathing.

If these fail, the nurse may breathe into the baby's mouth. To do this properly, the baby's nose should be held, the nurse's lips placed closely over the baby's open mouth as she breathes into it, then the nurse's mouth is removed and the grasp on the nose loosened, the sides of the child's chest being pressed upon to press out the air. The number of breaths given by the nurse in a minute should not at first exceed twelve.

Another valuable method of carrying on artificial respiration is known as Sylvester's method. The baby is placed on its back, with a roll made by

Sylvester's method.

FIG. 11.

Sylvester's Method of Resuscitation (First Movement).

a towel placed under its shoulders. The head is thrown back. The arms are then slowly lifted and carried well up over the head. They are held in this position until five can be slowly counted. By

this movement the ribs are elevated, the chest expanded and a vacuum produced in the lungs into which the air rushes; or, in other words, the move-

FIG. 12.

Sylvester's Method of Resuscitation (Second Movement).

ment produces "inspiration." The arms are then carried slowly downward, placed by the side and pressed inward against the chest. This forces out the air and produces "expiration." These move-

ments should be slow, repeated about fifteen times during each minute, and should be carried on until the breathing becomes regular. Should there be no sign of life, the efforts at resuscitation should not be abandoned for at least two hours after the birth.

Schultze's method.

A third method, which, however, requires the separation of the baby from the afterbirth, is most excellent. It is known as Schultze's method. It would be more apt to be practiced by a physician, because it necessitates the early and quick tying of the cord, and is only of advantage when practiced at once after the delivery. The method is as follows: The child is seized by the shoulders and upper arms and swung head downward above the operator's head. The weight of the lower part of the body is thus thrown upon the chest, and any liquids which may have been drawn into the air-passages are thus forced out. Being held thus for a time, while the operator counts five, the body is then brought down in reversed position between the operator's knees. The weight of the lower extremities is thus made to drag upon the chest and enlarge its capacity for the entrance of air. These two movements may be kept up for considerable time.*

* The order of these movements as given by Schultze is reversed. The upward movement is practiced first in the Woman's Hospital, as it is found that the air-passages are thus best cleared of mucus and discharges before an act of inspiration is encouraged.

FIG. 13.

Schultze's Method of Resuscitation (First Movement).

FIG. 14.

Schultze's Method of Resuscitation (Second Movement).

Warm baths.

Alternating with artificial respiration, warm baths may be employed from time to time. The tem-

After-care.

perature of the bath should be 100° Fahr. After breathing is established, the child should be placed in warm wraps, with bottles of hot water around it.

Tying of cord.

If all is well with the child, it is best not to tie the cord until all pulsation ceases in it. This measure is thought to save the child some loss of blood. As the pulsation may last for an hour or more after the delivery, the afterbirth is generally expelled before the cord is tied. To tie the cord, two pieces of bobbin, each eight inches long, dipped in a bichloride solution 1–4000, or in some other antiseptic solution, should be used. The first ligature should be placed three inches from the child's abdomen. The string should be carried underneath the cord. In making the first tie, two twists instead of one should be taken to keep it from slipping. If the thumbs are placed upon the string in tying, the ligature can be drawn more tightly, and the grasp of the ends of the bobbin is more secure. The second knot is tied the same way. The ends may then be looped, making a bow-knot. The cord should be stripped, that is, the blood remaining in the vessels squeezed out toward the afterbirth, before each ligature is thrown around it. The second ligature is one inch further away from the insertion of the cord into the child's abdomen.

After this second ligature is tightened, hold the cord with the forefinger and middle finger at the ligature nearest the child, the thumb and other fingers at the other ligature, and cut it with a pair of dull scissors between these points. The extremities of the scissors are thus made to look toward the palm of the hand, and a sudden movement on the part of the child does not result in the same danger to it, as there would be were the points not thus protected. After the cord is cut, squeeze the remaining blood out from the end next the child. The scissors for this purpose are preferably dull, as the more ragged wound thus produced favors the closure of the blood vessels. This lesson may be learned from nature, the lower animals gnawing off the cord after giving birth to their young, and thus no doubt decreasing the danger of bleeding.

Position during third stage of labor.

The best position for the mother during the delivery of the afterbirth is on her back, hence, she may be turned after the nurse has satisfied herself that the baby is in good condition.

Twins.

Very occasionally, on placing her hand over the abdomen, after the delivery of the child, the nurse may feel another child there. In this case she must simply keep the womb well contracted by rubbing it gently through the abdominal walls, and wait for nature to go on with the work of expulsion. This baby must be cared for as the other.

Delivery of afterbirth.

The afterbirth generally comes away within

twenty minutes after the child's birth. Two or three pains occur, during which the nurse should keep the womb in the middle line of the abdomen and make gentle pressure backward and downward. With her right hand she should seize the afterbirth and membranes and twist them around several times to make a cord of the membranes, so that they may not tear but all be expelled at once. A discharge of blood and some clots generally follows the delivery of the afterbirth. The nurse's left hand should still be kept carefully over the womb, which should feel hard and firm and should not reach above the navel. If it does not feel firm, rubbing over the lower part of the abdomen should again be resorted to until the round, hard body is felt.

If the afterbirth does not come for an hour, and the physician has not yet come, send for another doctor.

Examination of afterbirth.

After the afterbirth has come, it should be put in a clean vessel, and, if detached from the baby, put in an adjoining room for the doctor to examine when he comes. Insist upon his seeing it, to find out whether it is all there. Have the baby removed to its crib and placed on its right side and properly covered.

Care after third stage of labor.

Watch the womb carefully until the doctor comes. If it be firmly contracted, and no more blood be flowing from the vagina, place some dry napkins or

a clean sheet under the patient, and wash off the thighs and surrounding parts with warm water containing bichloride in the strength of 1–4000, and dry with a soft cloth. Cleansing of patient.

Slip the soiled clothing from under the patient, and then apply the binder and dressings, and make her comfortable. Change of clothing. Binder and dressings.

As soon as the doctor comes, report to him the exact time when the waters broke, when the baby was born and when the afterbirth came. It is always best for a nurse to keep a written report with a statement of what she did. She should not, however, neglect her patient for the purpose of perfecting her report. Report.

Sometimes a nurse has the misfortune to be the only attendant at a breech delivery, that is, instead of the child's head coming first, the breech passes out from the birth-canal. Delivery in this manner is very dangerous to the life of the child. The nurse should do absolutely nothing here, as she would only make matters worse in trying to assist. These deliveries are long enough, as a rule, to give ample time for the summoning of some doctor to take charge of the case. In all breech cases the child is apt to need to be resuscitated, if it is alive at all; hence plenty of warm water, etc., should be ready for the bath. Breech delivery.

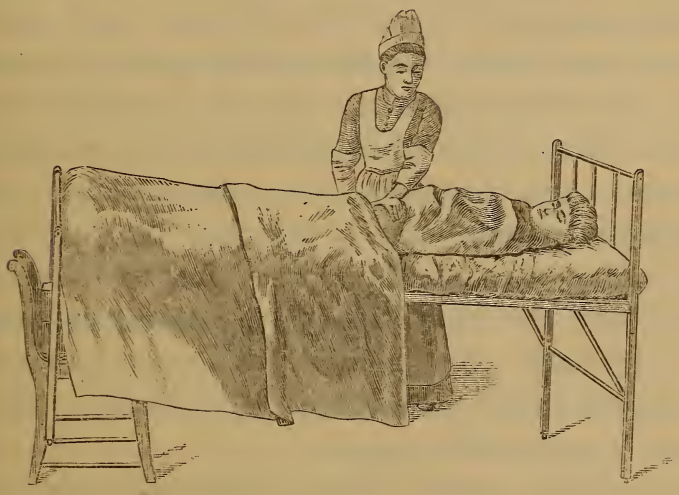
Flooding from the womb, or "uterine hemor- Hemorrhage.

rhage," is apt to occur either within the first twenty-four to forty-eight hours after the birth, when it is called "primary hemorrhage;" or, it may occur some days after, when it is "secondary hemorrhage." The appearance of blood, either a constant oozing or a sudden gush from the vagina, is, of course, the earliest symptom.

A pulse of over 100 in a patient freshly confined should make the nurse exceedingly watchful in this respect, as it betokens a liability to hemorrhage Should the flow continue, the patient becomes pale, faint, restless, gasps for breath, and finally dies unless the hemorrhage is checked. A nurse should, of course, have the physician sent for at once, although he may have just left the house, or another doctor should be summoned. In the meantime, her first thought should be of the uterus and its probable condition of relaxation. The bandage, if applied, should be hastily removed and the hand placed over the lower part of the abdomen. If the womb is not felt, rub vigorously until it contracts and is felt again as a round, hard body. Keep on rubbing and holding. The nurse should never take her hand off the abdomen until the doctor comes. Direct some one else to take the pillows from under the patient's head, have the foot of the bed elevated, to keep the blood in the head and prevent fainting, which induces heart-clot. Have the foot of the bed

placed on the seats of chairs. The patient may be fanned, cold water given her to drink, hartshorn to smell. She should not be allowed even to turn in bed or lift her head. If the doctor has left ergot, one teaspoonful of the fluid extract may be given in a tablespoonful of water. The patient should

FIG. 15.



Position of Patient in Hemorrhage after Labor.

receive this without lifting her head. Plenty of hot water should be on hand, the water in the tea-kettle boiling. If the physician delays his coming, and the flow continues, repeated hot-water injections of about 115°–120° should be given into the vagina.

Convulsions. Convulsions may come on during the labor as during the pregnancy. Their management would be the same as that suggested for convulsions during pregnancy.

Rupture of uterus. Prolapses. Other accidents, such as rupture of the uterus, or the coming down of an arm or hand, or the navel-string in advance of the usual part to come first, are conditions in which the nurse can do nothing, except to keep the patient as quiet as she can, and meddle as little as possible until the doctor comes, for whom, of course, she must at once send.

Demeanor of nurse. At no time, in the management of a case, should a nurse express surprise or consternation, nor should her manner indicate that she has such feelings. Like a true soldier, she must bravely and quietly face the most critical situations and meet their demands. She should by her manner give the mother to feel that all life's vicissitudes are best met by a quiet self-control.

Liability to accidents during labor. Fortunately, deaths during delivery in this enlightened age are few; for the methods of averting accidents at such times have been so thoroughly studied, that accidents themselves are very rare.

Preparations for obstetrical operations. As operative procedures during the course of a delivery may have to be resorted to very suddenly and unexpectedly, a nurse should have things in readiness should the emergency arise. The especial preparations necessary will consist in the making

of a cone of stiff paper, into which a towel is fitted, for the purpose of giving the patient ether; arrangements for an abundant supply of hot water, to be had at a moment's notice; facilities for making up antiseptic solutions quickly; a small pitcher containing a warm 2 per cent. creoline solution for the physician's instruments; some kind of grease, as carbolized cosmoline for lubricating these instruments when desired; English rubber catheter and urinal conveniently at hand; a basin with a 2 per cent. creoline solution for needles, sutures, and scissors; absorbent cotton in small pads, or soft linen rags dipped in an antiseptic solution, to be used instead of sponges; sufficient protection for the floor at the side of the bed; and preparations for resuscitation of the infant.

A "cross-bed."

The position of the patient for most obstetric operations will be across the bed, with her hips well over the edge. This is called a "cross-bed." Physicians generally call simply for a cross-bed, in desiring the nurse to make preparations for an operation, and she should understand that this refers to the arrangement of protectives and sheets, adjustment of pillow, and placing of patient in proper position. Should there not be a sufficient number of persons to have one hold each leg, chairs should be placed in such a way at the side of the bed as to support the widely-separated feet. A chair for the physician should be placed between these, facing

the bed. As there is usually some assistant to give the ether, the nurse will need to help in keeping the limbs apart and in giving the physician any other aid she can in the supply of the various articles as they are needed. Should the physician desire her to give the ether, her whole attention should be devoted to administering the anæsthetic, and seeing that the patient keeps in good condition. Strict watch should be kept over the respirations and the pulse. Difficult breathing, or a stoppage in the respirations, weakness or irregularity of the pulse, blueness of the face and lips, should at once be called to the physician's notice; the ether cone being removed from the patient's face. After the patient is once well under ether, it takes but little to keep up the anæsthesia, so that a nurse should use the ether sparingly; a few drops every few minutes upon the towel are, as a rule, sufficient. After etherization the patient may vomit, and there will be greater tendency to bleeding because of the relaxation induced by the anæsthesia, hence the nurse should exercise special watchfulness and care over the patient. The vomiting is often relieved by a mustard paste over the stomach, while the bleeding may be controlled by the hand placed over the lower part of the abdomen, which, by making pressure over the womb, insures good contractions. After the nausea is relieved, ergot, if prescribed by the physician, may be given.

CHAPTER VIII.

CARE OF THE NEW-BORN INFANT.

The mother being made comfortable after her delivery, the nurse should turn her attention to the infant.

Everything needed for the baby's first toilet should be collected and placed conveniently at hand, near the register, stove, or open fireplace.

Preparations for the first bath.

The nurse should put on a flannel apron, or pin a crib-blanket or flannel petticoat over her lap. The best bath-apron is one consisting of two pieces of flannel fastened to the same waistband. The lower piece is the one on which the baby lies; the upper serves as a covering. A pitcher of warm water and one of cold must be provided, the baby's bath-tub being placed near them, the baby-basket, suit of aired clothing and jar of rendered lard or oil within reach. The nurse should pick the baby up with its wraps and place it in her lap as she seats herself on a low chair or stool near the fireplace.

Vernix caseosa.

The baby will be found to be covered over portions of its body by a white, greasy substance, called "vernix caseosa," or "cheesy varnish." This substance is found in greatest quantity on portions of

the body subjected to friction while in the womb, hence it serves to protect the child's skin.

Its removal. Some kind of grease is needed for its removal. Rendered lard and oil are the best. Cosmoline is not so good, as it is stiffer than the other two—not so soluble a fat. All this cheesy substance must come away with the first washing, as, if left, it irritates the skin and produces sores. The most difficult parts of the body to cleanse are the folds or creases. The nurse should take a piece of lard about the size of a walnut, rub it over the palms of both her hands, and then, taking the child's head between her hands, rub the grease thoroughly in, giving especial attention to the ears. A second piece of lard, of the same size, will be needed for the neck, shoulders, arms, chest and back; a third piece for the groin, external generative organs, and lower limbs. The creases and folds about the generative organs, especially of a little girl baby, need very careful cleansing. When the baby has been thus thoroughly gone over, she should take the corner of a dry sheet and rub off the grease. Many physicians prefer not having the baby bathed after this greasing. It may then be dressed and laid in its crib.

The bath. Should the bath be preferred, the nurse should wrap the baby up in her flannel apron, draw the bath-tub toward her and prepare the bath, filling the bath-

tub about one-third full of warm water at a temperature of 100° F., tested by the thermometer. A wall-thermometer, costing fifteen cents, may be obtained at any drug-store for the purpose. The baby is then placed in the tub, its entire body, excepting its head, being immersed for a moment or two beneath the water. The nurse should keep the baby from slipping from her grasp by allowing its head to rest against her left wrist and hand, while the fingers of the same hand obtain a secure grasp under the child's left arm-pit. After the dip, the child is lifted out on to the nurse's lap again, where a soft, warm towel should have been spread for its reception. In this it should be wrapped and thoroughly dried. Great care must be taken to see that the arm-pits, groins and other parts of the body where creases exist are entirely free from moisture. After the first bath, the child receives, as a rule, but a sponge-bath daily until the cord drops, when the daily plunge-bath may be given. The baby should always be thoroughly washed with simple warm water over the parts of the body soiled, every time the napkin needs to be changed. Soap does not need to be used. Its frequent use would irritate the skin, and the parts can be perfectly cleansed without it.

Powder.

The use of powder in the folds and creases of the body is not essential. The main object is to keep rubbing surfaces dry, and should the nurse properly

attend to this duty after the bath, this, with the use of flannel next the baby's skin, ought to be sufficient to effect the purpose. Should a powder be desired, some very fine, unirritating powder, such as lycopodium, might be used. Many of the scented powders contain substances which are irritating to the skin.

Dressing the navel.

After the baby has been dried, the stump of the cord or navel-string should be attended to. Make a loop of the stump, doubling it back upon itself, and tying it tightly by means of the ends of the bobbin left from the first ligature. Slit up a square of soft linen to its centre. It is well to have rendered this antiseptic by dipping in a bichloride solution 1–1000 or 2000 before drying. Put this around the cord which is slipped through the slit (the slit looks upward toward the child's head), fold over the ends, and turn the whole upon the left side. Some physicians will direct that no dressing be placed around the cord. In fact, sometimes there is no ligature placed around it, but it is simply well stripped of the blood and jelly-like substance which help to compose it, and thus allowed to dry.

The placing of the loop of cord with its dressings on the left side of the child's body is to avoid pressure upon the liver, which is larger than any other organ in the infant's body at birth, so large, in fact, as to extend quite down to the navel. The

abdominal bandage is put on over the dressing to hold the latter in place.

Some use antiseptic gauze in the dressing of the cord. A drying powder, consisting of one part salicylic acid and five parts starch, is an antiseptic application which it is often desirable to employ.

Wharton's jelly.

A clear substance exudes from the cord as it shrinks which wets the dressings, so that it is necessary to change the piece of linen quite often the first day or two. A cord kept dry by the frequent change of dressings will have no odor about it, and will drop, on an average, by the fifth day. The base from which the cord dropped may continue moist for a few days, and is best dressed by dusting over it a little of the starch and salicylic acid powder before spoken of, and placing a small compress of antiseptic linen or gauze over it. The navel-dressing is kept in place by the application of the flannel binder, which should be carefully adjusted, so as not to compress the abdomen too tightly. After the bandage is fastened, the nurse's hand, used flatwise, should be easily slipped in between the bandage and the baby's skin. Should safety-pins be used in fastening the bandage, they should be placed in front and not at the back, or they may cause the baby discomfort in lying. The bandage fastened by the tapes, which is simply wound around the body, is safer on this account.

The binder.

Great importance should be given to the proper care of the navel, as it offers an open surface on the child's body through which poisonous matter may be taken into the blood, causing "infantile sepsis," or the blood-poisoning of infants.

The napkin.

Before the dressing of the cord, a napkin should have been laid beneath the hips of the infant, as there is very apt to be a free discharge of a dark, greenish matter from the bowels shortly after the birth. This is known as "meconium." It should always come away within the first twenty-four hours after birth, and may continue to come at intervals for three or four days. When it does not come away freely, the baby may suffer considerable pain. A soap suppository or a small injection of warm water will bring about relief, causing an evacuation of the bowels.

"Meconium."

This substance is very difficult to wash out of napkins, hence, it is a good plan to have a soft piece of old muslin placed inside the napkin to catch the discharge. This may be burned when removed.

Importance of careful washing and care in use of napkins.

The baby should be washed every time the napkin needs to be changed, even if it is only wet. Warm water should be used. A napkin should never be used twice without washing. The habit of hanging up a napkin wet with urine, allowing it to dry and using it again is not only filthy, but unsafe, as it renders the napkin irritating to the skin

and a source of possible septic infection. For the same reason a napkin should be changed as soon as it is wet or soiled. Though the work may be irksome, a nurse should not weary of it; for it is only by eternal vigilance that the child can be kept in good condition.

Under-vest.

After the application of the binder and napkin, the baby's under-vest or little, long-sleeved, high-necked flannel shirt should be put on. This should be fastened in front by safety-pins, or small, flat buttons or tapes.

If the shirt is too large, folds should be made at the sides to make it fit better; never in the back, because of the ridge this would produce under the surface upon which the baby lies.

Socks and dress.

The socks come next and then the flannel slip, constituting the only other garment the baby *needs*. The petticoat with slip, or Gertrude suit, may be used instead, if desired.

Washing of eyes and mouth.

The eyes and mouth should each be washed out with a separate soft piece of linen dipped in warm water.

Brushing the hair.

The baby's hair, if it has any, may be brushed with a soft baby-brush. No comb should be used, as the scalp is too tender.

The baby should then be placed in its crib, on its right side, and warmly covered. The weaker the baby is, the warmer it will need to be kept. Stone

jars, when filled with hot water, are nice for this purpose placed around the child, but care should be exercised not to let these bottles be placed so near as to cause a burn.

In another chapter we will consider the care of premature infants.

Weighing the baby.

The weighing of the baby devolves often upon the nurse. A steelyard being provided, the nurse may place the nude child in a napkin, tied or pinned securely at the corners. This napkin may be swung on to the hook of the steelyard as it is held up. The pointer will then indicate the number of pounds weight. The average weight of a new-born baby is 3250 grammes (about seven pounds).

In the Woman's Hospital the ordinary grocer's pan-scales are used, the weights being represented in grammes. The daily weight is taken and recorded on a card which hangs by a ribbon or string to the baby's crib, so that its daily condition may be carefully watched. For a comparison of the approximate weights in the metric and avoirdupois scales, I append the following table of equivalents:—

Relation of Avoirdupois to Metric Weights.

Avoirdupois pounds.	Grammes.	Avoirdupois pounds.	Grammes.
1	453.592	6	2721.55
2	907.18	7	3175.14
3	1360.78	8	3628.74
4	1814.37	9	4082.33
5	2267.96	10	4535.92

Loss of weight for first few days.

For the first three or four days a baby will lose weight, as it does not take in enough nourishment to make up for the loss it sustains by the newly-acquired activity of bowels, bladder and skin. At the end of the first week the baby should weigh about what it did at the birth. After that it should gain, on an average, thirty grammes a day (about one ounce).

The evening bath.

A sponge-bath is sometimes given the baby at the close of the day, when its clothing is changed for the night; but this is not necessary, if it has been properly attended to when the napkins have been changed. The fresh clothing at night is always essential.

The crib.

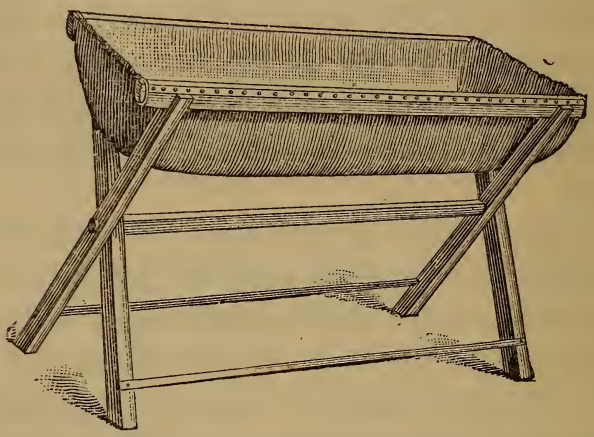
The baby's crib should have no rockers. All unnecessary swinging, rocking and jolting of babies only serves to make them nervous and more troublesome to take care of.

Combined bath-tub and crib.

A convenient and inexpensive crib and bath-tub combined, especially for traveling, is described in one of the numbers of "Babyhood," thus: "The frame is made something like a cot-bed. Straight pine sticks may be used. The legs, one inch and a half square by thirty inches long, are crossed and pivoted in the middle on a centre bar. The side bars, one inch by two inches and thirty-six inches long, are securely fastened to the top of the legs. Smaller bars join the legs near the bottom to stiffen the frame. A piece of

heavy rubber-cloth, one yard and a quarter long and thirty inches wide, has an inch-wide hem on each end for a casing, and is drawn up to eighteen or nineteen inches with heavy braid (a leather strap would probably be better). This makes the ends of the tub. Along the side bars of the frame are tacked, with brass-headed tacks, the sides of the

Fig. 16.



Home-made Bath-tub and Crib.

cloth, the braid (or rubber straps) being securely fastened to the ends. A small plait in the cloth at each corner, about an inch from the end, gives a fuller shape to hold the water (when it is in use as a bath-tub). The tub (or crib), when not in use, can be folded and set away out of sight, or it may be carried in the bottom of a large traveling-trunk

when on a journey. The frame may be made of walnut or cherry, with turned legs, etc., if so desired. A pillow put in the tub makes a comfortable and portable crib for the baby."

Separate bed from mother.

Children should never sleep in the same bed with their mothers. It is unsafe because there is danger of their being overlaid, and it is unhealthy because of the discharges, breath, etc., of the mother

Proper training of infants.

A baby may be trained to be contented and happy as it lies in its crib. If from its earliest days it is taken up simply to be fed, and receive the necessary attentions for keeping it clean and comfortable, it will not become the little tyrant a child develops into when foolishly spoiled by its mother.

Feeding of infants.

Babies should be fed but once in two hours during the day, and every three hours during the night, unless premature, when they can take less and should be fed every hour. An interval is necessary between the feedings in order that the stomach may rest and be prepared properly to carry on its work of digestion. Hence, the habit some mothers have of letting babies nurse whenever they cry, simply serves to produce indigestion, as well as to spoil the child.

Time.

First nursing.

For its first nursing the baby may be put to the breast an hour or two after the labor, if the mother

is sufficiently rested. The nipples should, before each nursing, be carefully washed off with cold water. The early secretion of the breasts, known as "colostrum," helps to rid the baby's bowels of their dark, tarry contents, as it is laxative. It is important that the breasts should be used alternately in feeding the infant, as this allows a longer time to elapse for the accumulation of milk. For the first day or two the baby needs comparatively little food. Should it seem to be hungry, however, and the mother unable to satisfy it, a teaspoonful or two of warm water or diluted peptonized cow's milk, prepared according to the suggestions to be given later, may be administered at regular intervals.

Before and after each feeding, the baby's mouth should be carefully washed out with a soft piece of linen dipped in warm water. This is to prevent the particles of milk remaining in the mouth from producing soreness by souring.

A drink of cold water.

Two or three times daily a baby should be given a teaspoonful of cool water to drink, as babies suffer from thirst just as their elders do. The cold water assists, also, in keeping the bowels from becoming constipated.

Insufficient milk.

Should the mother not have sufficient milk for her baby, it may have the bottle every other time, the additional food being selected with reference to the child's age and powers of digestion.

When a mother has no milk, the best substitute is a good wet-nurse. A wet-nurse should always be carefully examined by a physician, that her freedom from disease may be fully determined before she is employed. She should be between twenty and thirty years of age, and have good, not necessarily large, breasts, well-shaped nipples, and an abundant supply of milk. The condition of her own child should be considered, whether it be thriving or sickly, and especially whether there be any evidence of special disease. It is well, too, to try to get a woman who has had more than the one child, as a woman who has borne several children has, by experience, learned to understand and manage babies. The wet-nurse.

The first milk that comes in the breast, and which appears in any quantity, about the eighth month of pregnancy, is called "fore-milk," or "colostrum," from a word which means "glue." It is turbid, yellowish, gluey, alkaline in reaction, and easily sours. It differs from true milk in having a higher specific gravity, or weight; it also contains more salts and more albumen, and is more difficult to digest. It is laxative in its effect upon the baby's bowels. Physicians not unfrequently examine a specimen of this secretion under the microscope, to learn what the prospect is as to the mother's nursing the child. If, in the last two months of preg- Fore-milk. Prognosis for nursing.

nancy, the colostrum is scanty, and, under the microscope, there are but few oil globules, the patient will probably have poor milk and small in quantity. If the colostrum is abundant, but thin like gum-water, not gluey, and without yellowish streaks, it is probable that the milk will be watery and not nourishing. It may be either scanty or abundant. If the colostrum be plenty, with yellowish streaks and full of milk globules, the milk will be abundant and good in quality. The secretion of colostrum may continue from six to eight days. If it continues longer, it is a great disadvantage, and the mother may have to give up nursing because of the child's inability to digest the nourishment thus afforded.

Duration of secretion.

Characteristics of human milk.

Human milk should have a specific gravity of 1.032. It is alkaline in reaction; that is, it will turn red litmus-paper blue, and it contains the following ingredients:—

Water,	829.08.
Sugar,	46.64.
Casein and Ext.,	39.24.
Butter,	26.63.
Salts,	1.38.

Difference between human and cows' milk.

It differs from cows' milk in having a higher specific gravity, more solids, less water, and one-fifth the amount of casein. The effect of poor diet is to increase the water and diminish the butter and

casein, so that the milk becomes thin. The milk retained longest in the breast—the first milk drawn by the baby at each nursing—is the thinnest; the last, the richest. When, therefore, a baby seems to suffer from indigestion because of its mother's milk being too rich for it, it should take the first secretion from each breast at each nursing instead of drawing all the milk from one breast. One or two teaspoonfuls of water given the baby before each nursing have the same object. Should it, on the contrary, not seem to thrive because of the food not being sufficiently rich, the thin milk should be pumped or drawn out of each breast by the nurse or mother before the baby is allowed to draw. The two breasts are estimated to contain about two ounces of milk at one time.

Regulation of nursing to meet special demands.

The question of how to increase the secretion of milk is a very important one. The best way is by a judicious regulation of the mother's or wet-nurse's diet. There are no medicines which are entirely satisfactory for the purpose of stimulating the secretion. Therefore a nurse can do more than a doctor in this line by careful feeding of her patient. A mixed diet is the best for making milk. Beer and all kinds of liquors, as porter, etc., do more to fatten the mother or nurse than to make milk; therefore they are to be avoided. The special diet for a nursing woman is laid down in

Stimulation of increased secretion.

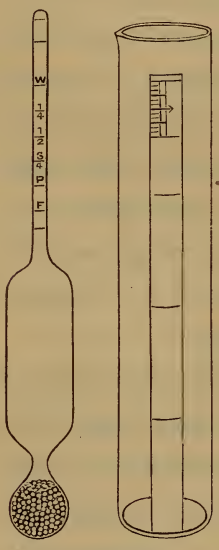
another chapter. Good human milk should be three per cent. cream.

Testing milk.

To determine the character of milk—human or cows' milk—an instrument known as the lactometer, or milk-tester, may be used, aided by the microscope.

The lactometer.

Fig. 17.



Lactometer.

The lactometer consists of a cylindrical glass vessel, or beaker, which should contain the milk to be tested, and a specific gravity glass, which is to be floated in the liquid. This glass is graduated and marked at certain points with certain letters and figures. Thus, W., P. and F. The W. stands for "water," P. for "pure," and F. for "fat." Between the W. and P., at different points, are the fractions, ¼, ½, ¾. Should the weighted glass sink in the liquid so that the surface of the liquid reached the mark W., the liquid tested would have the same specific gravity as water. Should the surface of the liquid reach the mark ¼, if it is milk that is tested, it would be ¼ milk and ¾ water. If the mark ½ is touched, it is ½ water and ½ milk. In this way the adulteration of the milk with water is detected. Should the level of

the liquid stand at P., we would have pure milk. Pure cream would raise the weighted glass so that the level of the liquid would stand at F. An ordinary urinometer may be used to obtain the specific gravity of milk in a similar way. Dr. Louis Starr suggests a good way to discover the proportion of cream in any given sample of milk: A narrow piece of paper, four inches long, is divided in its upper half inch by cross-markings into twelve equal parts. This paper is then pasted on the beaker of the lactometer with the marked portion uppermost, the lower edge touching the bottom of the beaker. Enough milk is then poured in to come just to the top of the paper, and the whole set aside for twenty-four hours. The cream rises and appears as a yellow layer at the top. This layer should have the depth of ten or twelve spaces, as marked on the paper.

Determination of proportion of cream.

On examination under the microscope, if there are but few oil globules in a specimen of milk, and if these oil globules be small, the milk is poor. On the other hand, if the oil globules in milk are too large, this becomes a cause for its indigestibility.

Microscopic examination of milk.

Should menstruation begin with a nursing mother, the milk may be so affected as to disagree with the child. Ordinarily, the menstrual flow does not recur until the eighth month after delivery. The appearance of the flow need not lead to a ces-

Effect of menstruation on secretion.

sation of nursing, unless the milk should seem to disagree with the child The character and quantity of the milk is impaired by deep or violent emotions; thus, anxiety, fear, anger, etc., will greatly detract from a woman's ability to be a good wet-nurse.

Effect of pregnancy on lactation.

Pregnancy always deteriorates the character of milk, and is an indication for weaning a nursing child.

Artificial feeding.

When the mother's milk utterly fails, and a wet-nurse cannot be had, hand-feeding becomes necessary. For this purpose diluted, sterilized cows' milk may be used.

Characteristics of cows' milk.

Cows' milk has a specific gravity of 1.029. The milk obtained from stall-fed cows gives an acid reaction; that from pasture-fed cows a less acid reaction. Could the latter be obtained directly from the cow its reaction would be slightly alkaline, as with human milk.

Analysis of human and cows' milk.

An analysis of the same quantity of woman's milk and cows' milk is reported as yielding the following results:—

	WOMAN'S MILK.	COWS' MILK.
Water,	87.88 parts.	86.87 parts.
Total solids,	12.13 "	13.14 "
Fat,	4.00 "	4.00 "
Albuminoids,	4.00 "	4.00 "
Milk-sugar,	7.00 "	4.5 "
Ash,	0.2 "	0.7 "
Bacteria,	not present.	present.

The woman's milk for this analysis was obtained

directly from the breast. The cows' milk was, as it is ordinarily obtained in cities, about twenty-four hours old.

By an examination of this analysis, it will be seen that the proportion of coagulable substances of cows' milk is much greater than in human milk. This is where the difficulty in its digestion lies. Casein of human milk coagulates in light curds; in cows' milk in firm, hard curds. Peptonizing digests the casein, while thickening milk with barley-water helps to separate the curd, so as to prevent the formation of large, hard masses. In peptonizing milk the following formula may be followed:— Points of difference. Peptonization of milk.

℞. Ext. pancreatis, ... ʒj.
Sod. bicarbonatis, ... ʒij.

To 1 gill tepid water and 1 pint tepid milk. Let stand in a temperature of 100°–110°, Fahr., for half an hour.

A preparation found especially useful in the feeding of infants is the following formula:— Food recipes.

Peptonized milk, ...	6 tablespoonfuls.
Milk sugar, ...	½ teaspoonful.
Barley-water, ...	2 tablespoonfuls.
Lime-water, ...	1 tablespoonful.

(*Dr. A. E. Broomall.*)

When milk has not been skimmed, the addition of cream to the feeding is not essential. As most milk brought to cities has been deprived of at least

a part of its cream, various formulas have been suggested for producing mixtures which will resemble human milk as closely as possible in their constituents. A favorite formula in Philadelphia is that of Dr. Meigs, known as Meigs' Food:—

2 parts cream.
1 part milk.
2 parts lime-water.
3 parts sugar-water.

The sugar-water is prepared by putting 18 tablespoonfuls milk-sugar to a pint of water. Another formula used contains:—

Cream, ... ℥iss.
Milk, ... ℥j.
Water, ... ℥v.
Milk sugar, ... ʒiij⅜.

Steam 20 minutes and add lime-water.—(*Rotch.*)

Dr. Louis Starr gives a very useful dietary for infants which has also met with great success. Those formulæ which especially concern the obstetric nurse are as follows:—

Diet for first week:—

Cream, ... 2 teaspoonfuls.
Whey,* . . . . . 3 teaspoonfuls.
Water (hot), ... 3 teaspoonfuls.
Milk sugar, ... ¼ teaspoonful.

* Whey is made by adding 3 teaspoonfuls of wine of pepsine to a quart of warm fresh milk, and placing the mixture near the fire for 2 hours; the curd is removed by straining through muslin.

For each portion; to be given every 2 hours, from 5 A. M. to 11 P. M., and in some cases once or twice at night, amounting to 12 fluidounces of food per day.

Diet from the second to the sixth week:—

Milk,	1 tablespoonful.
Cream,	2 teaspoonfuls.
Milk sugar,	¼ teaspoonful.
Water,	2 tablespoonfuls.

For one portion; to be given every 2 hours, from 5 A. M. to 11 P. M., amounting to 17 fluidounces of food per day.

The proportion of milk in the mixture and the quantity given at one time are carefully increased during the succeeding weeks.

Quantity for one feeding and daily quantity.

A new-born infant's stomach holds about 1½ ozs. The average daily quantity of food required for the first 2–3 months is 20 ounces; after 3 months, 23 ounces; after 4 months, 27 ounces; 6–12 months, 30 ounces. The child's appetite, if it be healthy, is, however, a good gauge. During the first month, 1½ ounces of the prepared cows' milk may be given at each feeding and 12 feedings given daily.

Temperature of food.

The temperature of the food should be 99°, Fahr. It is a great mistake to make it too hot. The warming of the child's food should be accomplished by setting the filled nursing-bottle into a

vessel of hot water. It may be heated quickly over a gas jet by setting the bottle into a tin mug filled with water and holding it over the flame. Suggestions concerning the modification of food, when milk thus prepared does not agree with infants, will be given in another chapter. When the mother's supply of milk is scanty, and the baby cries with hunger, occasional meals of the above preparations will be a great aid in its management.

Artificial food as a supplement to mother's milk.

Sterilization of milk.

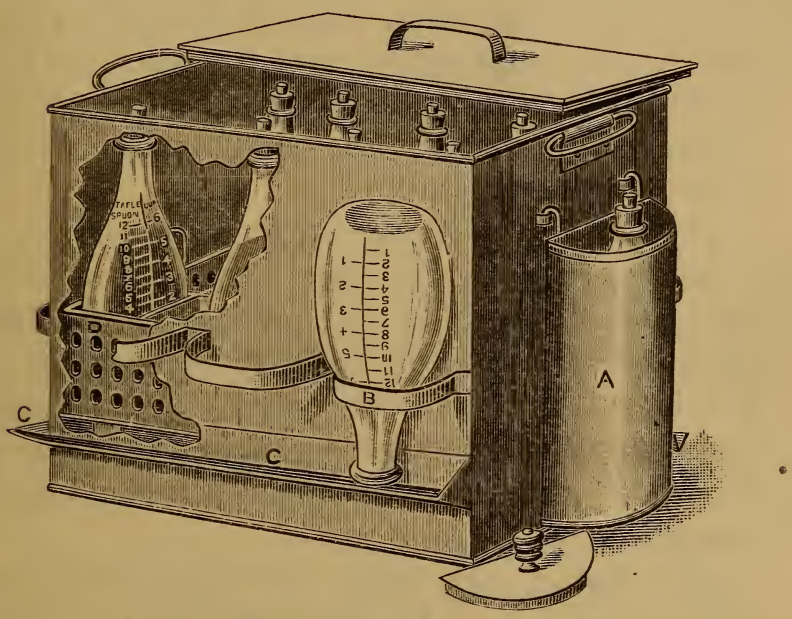
In the artificial feeding of infants in the Woman's Hospital, sterilized milk alone is used for the various preparations employed.

By sterilizing milk is meant the process of destroying any poisonous matter which may have found its way into it. Exposure to the atmosphere and admixture with particles of dust and dirt during its transportation, with want of care as to cleanliness of vessels, etc., in which the milk is kept, induce certain fermentative changes, which cause it to sour and to produce digestive disturbances. Sterilization destroys the germs of poisonous matter by subjecting the milk to a high degree of heat under pressure. Many forms of apparatus have been devised for this purpose. The one in use at the Woman's Hospital is called Blair's Sterilizing Apparatus. It is very similar in general construction to the one devised by Dr. Louis Starr and shown in the cut. This consists of an oblong case

Apparatus for sterilization.

of tin fitted with a tight cover. Into this a movable wire basket, holding ten bottles, is placed. The bottles are of flint glass, graduated and fitted with rubber corks having a glass plug fitted into an

Fig. 18.



Sterilizer (Dr. Louis Starr).*

opening in their centres. The rules for using the sterilizing apparatus are as follows:— Rules for sterilizing milk.

1st. Cleanse the bottles thoroughly.

2d. Fill each with the milk you wish to use, put

* "Hygiene of the Nursery," Philadelphia, 1889.

in the rubber cork without the glass plug (this leaves a small opening in the rubber cork); set the bottle in the basket, then in the boiler; fill the boiler with water almost as high as the milk in the bottle; boil about ten minutes, or, better, as Dr. Starr expresses it, "until the expansion that precedes boiling has taken place in the milk;" then put the glass plugs tightly in each stopper and boil for fifteen to twenty minutes more. Should the rubber corks incline to come out during the second boiling, put them in firmly.

3d. Keep in a cool place till needed for use.

4th. When to be used, place a bottle of the milk thus prepared in the tin mug which accompanies the apparatus. Pour hot water in the mug until it is as high as the milk in the bottle. Heat the milk to the temperature desired for feeding (99° Fahr.); remove the rubber cork and put on rubber nipple, and feed.

5th. Cleanse each bottle immediately after the milk in it is used. Do not keep milk in a bottle that has had some used out of it.

6th. If the steaming process is preferred, place the basket, without the bottles, in the boiler, fill with water up to but not above the bottom of the basket, place the bottles in the basket and proceed as before.

Milk should be sterilized as soon as possible after

it has been served each morning. Each bottle, when emptied, should be thoroughly washed. If the whole contents of the bottle are not used after it is opened, the remainder must not be used for the child nor allowed to remain in the bottle.

Length of time sterilized milk will keep.

Milk sterilized in this way will keep for days without spoiling, as it is hermetically sealed and has been deprived of all unhealthy germs. Dr. Louis Starr makes the assertion that it will keep for eighteen days if the heating is continued for thirty minutes.

Convenience when traveling.

Sterilized milk is useful when traveling, as it may be carried without any trouble, the difficulty of obtaining fresh milk being thus overcome. Its use makes the management of babies during the heat of summer much easier.

Nursing bottles and rubber nipples.

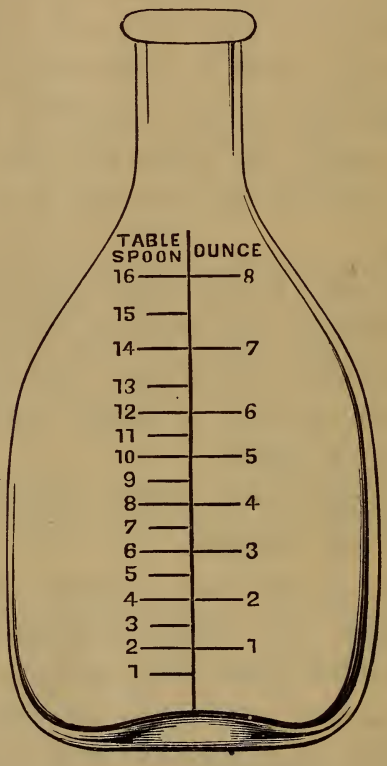
A word remains to be said concerning feeding-bottles and rubber nipples.

The bottle should be of clear glass, with a rounded bottom, of a shape convenient to clean, so that no particles may cling about corners which cannot be reached, serving as a source of trouble afterward. The graduated bottle is very nice, as it enables the quantity of each of the materials used in the preparation of the feeding to be mixed directly in the bottle, instead of being first measured out in a graduate.

Feeding-bottles with India-rubber tubes are very

objectionable, for the tubes are difficult to keep clean, and a drop or two of milk left behind will often be sufficient to turn the next supply sour,

Fig. 19.



Graduated Nursing Bottle (Dr. Louis Starr).*

causing the infant much sickness and suffering. Nurses are prone, also, with these tubes, to place

* "Hygiene of the Nursery," Philadelphia, 1889.

the baby in its crib with the bottle of milk by its side and the nipple in its mouth. The heat of the child's body tends to sour the milk, the liquid may run low, and the child suck in considerable air. The neck of the bottle should always be kept filled with the liquid while the child is nursing, hence the position of the bottle must be changed. A feeding-bottle fitted with a rubber nipple requires to be held in the nurse's hand during the feeding, and is, on that account, to be preferred. There should always be two nursing-bottles for each baby, one being kept under water or filled with a soda solution while the other is in use. Immediately after the meal the bottle should be cleaned, etc. Scalding water should be used, and then the bottle filled or placed beneath a solution of bicarbonate of sodium—ordinary baking soda—a teaspoonful to the pint, until it is again needed, when the soda solution should be emptied out and the bottle thoroughly rinsed with cold water. Some use salicylate of sodium for the cleansing solution in preference to the bicarbonate.

Cleaning of nursing bottle.

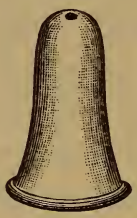
Two nipples should be in use at the same time, being used alternately, and no nipple should be used longer than two weeks. A soft rubber nipple of conical shape is the best, because it can be more readily cleaned. The black rubber is generally softer than the white and is to be preferred. The

Rubber nipples.

opening at the top of the nipple should not be too large, as that would permit the milk to flow through, when the suction produced by the child's mouth is necessary to the food being taken in a natural manner. So soon as the meal is over, the nipple should be removed from the bottle, brushed with a stiff brush, wet with cold water on the outside, then turned inside out and similarly brushed on its inner surface. It should then be put in cold water and

Cleansing of rubber nipple.

FIG. 20.



Rubber Nipple (Starr).

allowed to stand until wanted. A nurse's sense of smell should be keen enough to enable her to detect the slightest sourness about a bottle or nipple.

Time required for feeding.

The baby should be fed slowly—taking often ten to twenty minutes for its meal. Sucking from an empty bottle should never be permitted.

Preparation of food.

It is a bad plan to make the whole day's supply of food in the morning. Each meal should be separately prepared, to be really fit for use.

The sterilization of the quantity of milk to be used during the day may all, however, be accomplished at one time.

Improvised sterilizing apparatus.

In lieu of the regular sterilizing apparatus, milk may be similarly boiled in a water-bath formed by any ordinary boiler, the milk being contained in a glass fruit-jar with a screw lid. After coming to the boiling-point, or boiling about two minutes without the lid, the latter may be screwed on and the boiling continued. A better way is to put the jar in a colander placed over a steaming tea-kettle in place of the lid. The milk should be allowed to boil in the open jar for about two minutes; the jar lid then being screwed down, it should steam for twenty minutes.

Free ventilation.

Beside good food and sufficient warmth, babies need an abundant supply of fresh air, hence the room should be kept pure and wholesome.

The daily airing.

In fine weather, after the first three or four weeks, a baby should be carried out in the open air every day for a time.

It is preferable to carry the child in the arms, rather than to place it in a baby coach. It can thus be kept warmer, and any evidence of chilling will be sooner detected by the appearance of the baby's face.

CHAPTER IX.

MANAGEMENT OF THE LYING-IN.

Rest. Immediately after the delivery it is necessary that the patient should have rest. The room should be kept exceedingly quiet and the shades drawn down so as to subdue the light.

Light sleep. The patient may be allowed to sleep, but the nurse, during this time, should watch her very carefully, as there is a liability to bleeding when the sleep is too deep, owing to the general relaxation induced by sleep. She should draw the bed-clothes up at one side from time to time, to see how much blood is lost.

Absence of odor. There should be no unpleasant smell about a confinement room, plenty of fresh air should be allowed to enter, and all discharges should be at once removed from the room.

Attention to soiled clothing. While the patient sleeps, and after the child has received proper attention, the nurse should place the soiled sheets, towels and all articles stained with blood, in cold water, to soak.

Care of afterbirth. The afterbirth, also, should be disposed of. If in the country, it should be buried in a hole dug in the yard, two or more feet deep. It should never

be thrown down a water-closet or privy. In the city it is best to burn it, at night. It may be put in the range or stove and well covered up with coals. Clots of blood may safely go down the water-closet, as they readily dissolve.

Duties of nurse as regards washing.

To return to the soiled clothing left after a confinement—though a trained nurse will not often be called upon to attend to the washing of these articles, there will be times when it would be better that she should do so, both to save the patient expense and trouble and to prevent their lying about too long. At any rate, she should know how it should be done. Should the clothing be put to soak before the blood has dried into it, and allowed to remain for a few hours, the water being changed as often as needed, the washing will not be difficult.

As a rule, it is not best that a nurse should leave her patient or the baby long enough to attend to this wash, hence it is advisable to have it put out or done by some one else in the house. The soaking ought, however, always to be attended to by the nurse, because it facilitates the subsequent washing.

In the after-care of the patient the nurse should attend to the washing of the mother's and baby's napkins. She should, if needed, wash the baby's flannels and slips.

Visitors.

For a week a newly-confined patient should see no visitors. Even the husband should not remain in the room long at a time. No painful or exciting news should be communicated to the patient, as a distressing form of mental trouble to which lying-in women are prone may be thus induced. This is known as "puerperal mania."

Puerperal mania.

Food of lying-in patient.

After the patient rouses from her first sleep she is generally hungry. The nurse should have learned from the physician before he left what he would prefer her having. A cup of warm milk or tea—not too hot—may be given directly after the confinement when ether has not been taken, and this followed in three or four hours by a light meal, as toast and tea or gruel. With regard to the diet of the lying-in, nurses must be prepared to follow the rules of the physicians for whom they work. Some physicians allow considerable variety in the food from the beginning.

Dietary of the lying-in.

The following directions concerning the diet are given to the nurses of the Woman's Hospital: "It should be remembered in the diet of the lying-in woman, that the amount of liquids must be limited, not only until after the secretion of milk, but also until the supply of milk adapts itself to the demand, for the first five or six days after the confinement.

As soon as the patient is made comfortable after

the birth, she should have a cup of warm milk or weak tea or warm water and milk.

First meal time: Plate of milk toast or bowl of oatmeal gruel, or saucer of wheat germ or boiled rice.

Second meal: Cup of weak tea or warm milk, dry toast, or milk toast, or water toast, or soda crackers soaked in hot milk.

Third meal: Saucer of oatmeal mush or wheaten grits, with a cup of tea or warm milk, with Graham biscuit or dry toast.

Forenoon, afternoon, bedtime: Lunch, a cup of warm milk, with a piece of dried bread or zwieback.

Second Day.—The same as above.

Third Day.—The same, with the addition of stewed apples or baked apples for supper.

Fourth Day.—Breakfast: Soft-boiled egg, dried bread, stewed fruit and cup of milk or weak tea.

Dinner: Plain beef or mutton-broth, dried bread, and farina or junket.

Supper: Baked apples or stewed prunes, saucer of wheat germ and zwieback.

Fifth Day.—Breakfast: Cup of weak coffee or cocoa, mutton-chop, oatmeal mush, dried bread, and a sweet orange or ripe apple.

Dinner: Beef or mutton-broth or oyster-stew, baked potato, stewed tomatoes, dried bread, farina, junket, or rice.

Supper: Stewed fruit, Indian-meal mush and zwieback.

Sixth Day.—Ordinary plain diet, avoiding salads, sour fruit, fried or highly-seasoned meats, fancy desserts, or sweets of any kind." *

This holds good of all subsequent meals. The above dietary will require to be modified when special indications arise. Should the patient's temperature rise to 100° Fahr., or above, she should be kept on liquid diet, as milk and beef-tea, alternately every two hours.

As liquids favor the secretion of milk, liquid food should constitute a large proportion of the nourishment taken by nursing women throughout the lying-in, provided there is not a tendency to oversecretion. The diet should be plentiful and nutritious, but selected carefully with reference to its digestibility. As the patient must remain inactive for some time, it will not do for her to eat the starchy vegetables, pastry or warm breads, for all these require very active powers of digestion.

A nurse should thoroughly understand the art of cooking, and be able to provide her patient with palatable and nutritious dishes, daintily and prettily served on a tray, until, with the physician's consent, she takes her place at the family table. Even then

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* Dr. Anna E. Broomall.

a nursing woman will need to receive some nourishment, as gruel, beef-tea, milk, etc., between the regular meals, for she must not only provide for herself but her child.

Duration of lying-in.

The lying-in lasts six weeks. During this time the organs of generation are returning so far as possible to their former condition. It is important that the patient should have rest, and for at least two weeks of this time should be in bed.

Confinement to bed.

"Involution."

The process of changes by which the womb shrinks to its normal size is known as "involution." This process is favored by the patient lying as much as possible on her back, so that the womb does not incline too much to one side or the other.

"Lochia."

The discharges of the mother continue about two weeks, and they are called the "lochia." For the first twenty-four hours they are blood; the second and third day, watery blood; from the fourth to the sixth day they have a greenish-yellow coloration, and from the tenth to the twelfth day they become white. This white discharge may continue for a long time after the confinement. The character of the discharge will indicate the progress of involution, hence the physician should see daily the napkins or dressings removed from the patient. Soiled napkins and dressings should never be kept in the patient's room, but in some closed vessel, as a clean chamber or a slop jar, with a close-fitting lid, in

another room. The existence of the least odor about the discharges should at once be brought to the physician's attention. If napkins are used, they will need to be changed during the first day about every two hours, sometimes oftener, the second and third day about every three hours, the fourth and fifth day every four hours, until, by the tenth day, about three changes are sufficient. The antiseptic dressings are changed, as a rule, every three hours until the discharge ceases. If it be very scant, a change once in six hours may be sufficient. These antiseptic dressings should be burned. The napkins should be soaked in cold water until the blood is well out of them, and then thoroughly washed and boiled. The boiling is sufficient, if properly done, to render them aseptic, but, as an additional precaution, they may be wrung out in a 1–2000 bichloride solution before drying. The patient should be washed off each time the napkin is changed with a warm antiseptic solution, as 1–4000 of the bichloride of mercury. Care should be taken not to irritate the parts. Instead of using a soft cloth to wash off the parts, the water may be poured in a small stream over them, and a soft, dry cloth pressed gently over them to remove all moisture. Especial care should be taken, where there are stitches, not to pull upon them in any way.

Changes of napkins and dressings.

After-care of napkins and dressings.

Cleansing of patient.

Bathing. One daily washing of the entire body is, as a rule,

desirable. The doctor's advice, however, should be asked concerning the matter. This wash, when given as a sponge-bath, need not exhaust the patient, nor cause too much movement of her body. The patient should never feel chilly during this bath; should she do so, the bath must at once be stopped. The bath should, of course, be given under cover. The increased activity of the skin necessitates especial cleanliness, and the daily bath is found, when properly given, to be very refreshing. Frequent changes of bed and body clothing, too, are necessary—the body clothing, if possible, daily until the discharges cease.

The bladder

The bladder is frequently paralyzed after confinement, as a result of the pressure to which it has been subjected during the birth. When it is filled beyond a certain limit, it may respond to the irritation and a little urine be voided, but the bladder not be emptied. The nurse can tell by the amount passed whether the patient has probably emptied the bladder or not. The secretion of urine early in the lying-in is very free, hence the quantity passed should never be scant. By placing the hand over the lower part of the abdomen, the bladder may be felt as a soft tumor on one or the other side, above the pubic bone, the womb being felt as a harder mass pushed to the opposite side.

Use of catheter.

The catheter should not be used without the

physician's sanction, but a nurse should never forget to ask very particularly about this matter before he leaves the house after the delivery. It is generally undesirable to allow a patient to go longer than six hours without freely emptying the bladder. As over-distention of the bladder prevents proper contractions of the womb, and, as a relaxed womb is a frequent cause of after-pains, it is best to have the bladder quite frequently emptied during the first twenty-four hours. Hence, if the catheter is permitted to be employed, it may be well to use it about three hours after delivery for the first time (the physician having used it, if necessary, immediately after delivery). Its subsequent use should be limited to about once in six hours, unless its more frequent use is demanded by the interference with the contractions of the womb caused by over-distention of the bladder. The patient should be encouraged to make a trial to urinate as soon as possible, so that the use of the catheter may be entirely dispensed with. Great care is necessary in the use of the catheter: 1st, to see that the instrument is thoroughly clean and kept clean; 2d, to see that none of the vaginal discharges are carried into the bladder during its introduction; 3d, to do no injury to the mother's parts or give her needless pain.

Precautions in use of catheter.

The instrument, or silver catheter, should be

thoroughly boiled if there is any doubt about its being aseptic. When withdrawing it the outer extremity should be kept lowered, so that all the urine remaining may flow out from it, and no sediment settle in the closed end to become a source of contamination at some future time. It should then be thoroughly washed in hot water, which should be allowed to flow through it from the inner toward the outer extremity, carrying out any sediment from the urine, and it may be kept during the intervals of its use in an antiseptic solution—a 2 per cent. solution of creoline or carbolic acid. To prevent the carrying of the vaginal discharges into the urethra the parts should be carefully washed off with an antiseptic solution, either by irrigation or by means of a soft cloth, before the insertion of the catheter.

Method of using catheter.

The index finger of the nurse's right hand (which should each time be thoroughly cleansed in an antiseptic solution) should be slipped into the vagina as far as the second joint, and made to follow the anterior vaginal wall down in the median line to the vaginal entrance, when a little elevation of the surface will be felt, immediately above which the orifice of the urethra is to be found. If the finger be held with its palmar surface upward and resting lightly upon this elevation, the finger being held horizontally, a catheter slipped along it will enter the

small orifice of the urethra. Should the extremity of the catheter seem to meet with any obstruction after its entrance into the urethra, a slight withdrawal and rotation of the instrument will generally carry it in. The use of the catheter need not involve the slightest exposure of the patient. A cultivated touch will enable a nurse to do better than by sight in its use. Hence, it may all be done under cover.

Difficulty in urination from œdema.

For the first twenty-four to forty-eight hours after delivery, particularly if the labor has been a difficult one, there is considerable swelling of the parts, which offers a mechanical hindrance both to voluntary urination and the passage of the catheter. Great gentleness is therefore required in the necessary manipulations. This swelling in an ordinary case should disappear at the end of twenty-four to forty-eight hours. Should the inability to urinate persist after this, it is in all probability due to the condition of paralysis before referred to. Especial medication by the physician, as the use of muscle and nerve tonics, fomentations over the lower part of the abdomen and external generative organs, hot water in a bed-pan, placed beneath the patient's hips, may serve to stimulate voluntary urination. The attempt to induce this should be made each time before a resort to the catheter, as the constant use of the latter will only keep up the difficulty.

As a rule, there is no movement of the bowels for the first three days, constipation being due to paralysis of the bowels caused by the pressure of the gravid womb upon the bowels. Regulation of the food will do much to correct this habit, as a laxative diet composed mainly of brown bread, oat-meal gruel, prunes, etc. An occasional enema of warm soap-suds may be needed, or from a teaspoonful to a tablespoonful of glycerine may be injected into the lower bowel, or a glycerine or gluten suppository be given. If these means do not suffice, some medication may be needed. The laxative chosen by the physician will depend upon the condition of the breasts, as well as its liability to affect the milk.

Constipation.

Choice of laxative.

Should the breasts be over-distended, a saline laxative will be preferred. Thus, two teaspoonfuls of Rochelle salts in a half-tumblerful of cold water may be given, an additional tumblerful of pure water being taken after it. Sulphate of magnesia or Epsom salts may be used in the same way, or a teaspoonful of cream of tartar may be taken night and morning in a cup of sweetened water.

When the secretion of milk is scanty, a vegetable laxative is to be preferred, as rhubarb, aloes, or cascara sagrada.

At times there is such impaction of the contents of the lower bowel that an oil injection will be

Enema of oil.

needed. A gill of cotton-seed oil may be introduced into the lower bowel and retained for three or four hours, after which a small soap and water injection will lead to a thorough evacuation of the bowel.

Care of nipples and breasts.

The care of the nipples and breasts is very important. If this matter has received proper attention during the pregnancy, there will be comparatively little trouble during the lying-in. It is important to keep the nipples clean. Milk should not be allowed to collect about them, hence immediately after nursing, while they are swollen and soft, they should be washed; a soft piece of linen may be used and cold water, after which they may be dried with a soft cloth. This should be repeated after every nursing.

Use of nipple shield.

If the skin of the nipple be unusually thin, it is best to avoid having the baby pull directly upon the nipple until the milk flows freely, hence a nipple shield should be used at least for the first two or three days, if not longer.

Application to sore nipples.

Should the nipple become sore at any time, the nipple shield should again be resorted to and used until the sore is healed.

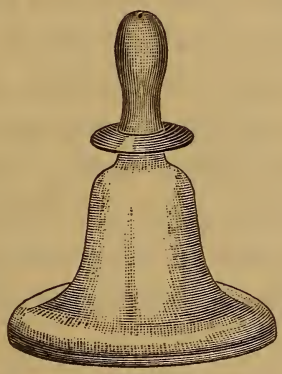
Some application, as a 10 per cent. solution of tannic acid in tincture of myrrh, balsam of Peru, or a weak solution of nitrate of silver, according to the order of the physician, may be painted with a

camel's-hair brush over the nipple while it is soft and swollen, immediately after nursing.

Qualities of nipple shield.

For any nipple shield to work perfectly it must fit tightly, hence an entire rubber shield is not so good as some others. Some shields are made of part metal and part rubber, others part rubber and part glass. The cheapest are the ordinary glass

Fig. 21.



Nipple Shield.

shields with rubber nipples. These cost about fifteen cents and are quite as good as those that are higher priced.

A shield is not good if it allows the nipple to be drawn out too far. In the intervals of nursing the rubber nipple should be kept in cold water after having been turned inside out and thoroughly cleaned with a brush.

Nipple protectors.

Nipple protectors are worn only in the intervals of nursing, or during pregnancy, for shaping the nipple.* These may be made of lead, glass, or wood. Leaden protectors keep the nipples soft in the intervals of nursing and have a healing effect upon the abrasions and cracks of a tender nipple. Unless care be taken, however, to cleanse the nipple thoroughly before the baby nurses, there is danger of lead-poisoning. Nipple protectors of glass and wood, being open at the top, are intended more to keep the clothing of the patient off the tender nipple. The nipple may, in addition, be kept moist in the intervals of nursing by the application over it of a piece of absorbent cotton saturated with a mixture of one part glycerine to two parts water.

Variation in shape of nipples.

Nipples vary much in shape—thus, they may be cone-shaped, hollow, mushroom-shaped and depressed.

Cone-shaped nipple.

The cone-shaped nipple is the best, as it can be readily seized by the child's mouth and the pressure of the baby lips does not constrict the nipple at its base, so as to prevent the free escape of milk from the mouths of the milk ducts which open at the top of the nipple.

Mushroom shaped nipple.

The mushroom-shaped nipple has so narrow a base that the free flow of milk may be thus prevented.

Hollow nipple.

The hollow nipple is apt to get sore from two

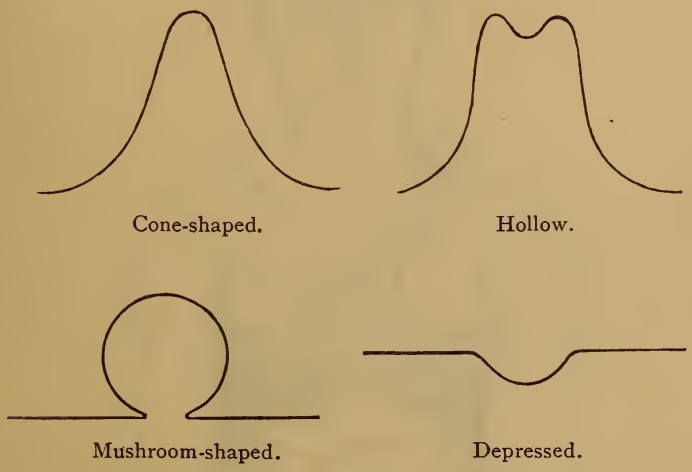
* See Fig. 3, page 33.

causes: first, by the forcible suction made by the child in emptying the breast; second, by the accumulation of milk in the depressed portion of the apex.

Depressed nipple.

The depressed nipple differs from the last class in the fact that there is no elevation of the nipple above the surface of the breast, but where the nipple should be there is a corresponding depression.

FIG. 22.



Very little may be done for such a nipple, and all efforts to make a nipple by drawing it out must generally be abandoned, as they simply irritate the tender skin.

Bandaging of breasts.

It is best when nipples of this last class exist to abandon the idea of nursing the child, and prevent the accumulation of milk in the breasts by bandag-

ing. This should also be done where there is a previous history of breast abscess — the breast affected being thus bandaged to prevent the attempt at secretion by the gland.

FIG. 23.

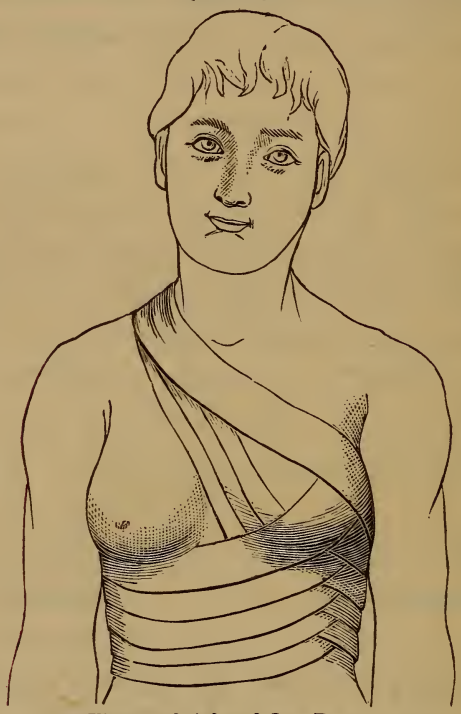


Figure-of-eight of One Breast.

The firmest bandage is the figure-of-eight of the breasts, which may be applied to one or both of the breasts according to need. If it cannot be used, the wide, straight bandage, similar to an abdominal

bandage, may be employed, or the straight bandage with straps to fasten it over the shoulders, according to the pattern used by Dr. Garrigues, of New

FIG. 24.

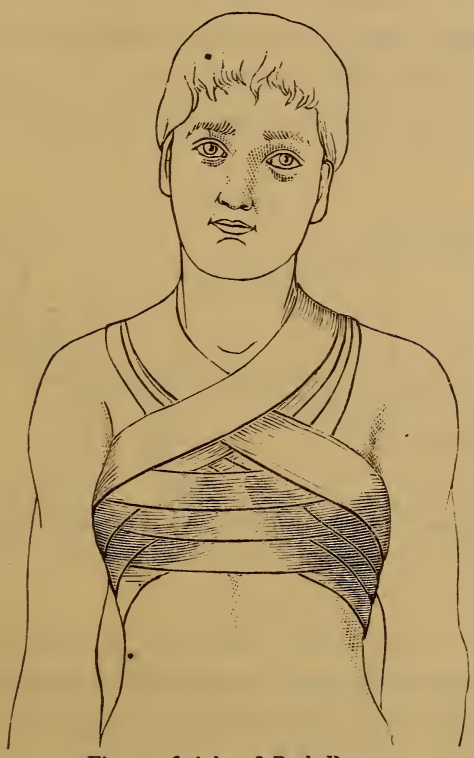


Figure-of-eight of Both Breasts.

York. Were the milk permitted to accumulate in the breast, and there be no ready outlet for it, "caked breast" would be apt to ensue.

"Caked breast."

By "caked breast" is meant a collection of milk

in one or the other part of the breast, due to blocking up of a milk-duct. The indications for its relief are to empty the breast. The milk may be drawn out by a baby if there be a proper nipple, or by the use of the breast-pump.

Rubbing of breast.

The breast may be gently rubbed with warm oil and stroked from the base toward the nipple to aid in carrying the milk toward the mouths of the

FIG. 25.

Garrigues' Breast Bandages.

milk ducts. Camphor liniment is sometimes used as an inunction, alone or combined with laudanum, but unless it is the intention to help to dry up the milk, camphor should be avoided.

Fomentations.

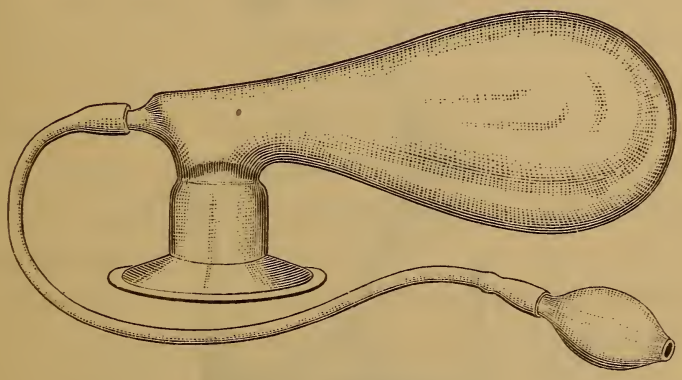
The use of fomentations before rubbing greatly helps to soften up the breast. By fomentations is meant the application of flannels wrung out in hot water, constantly changed as they cool. These applications should be continued for fifteen to twenty

minutes at a time. After their use, if the baby be put to the breast or the breast-pump be used, the milk will generally flow quite freely.

Those breast-pumps are the best which depend for suction on the power of the mouth. The Phœnix breast-pump is the one generally preferred. Breast pumps.

They may be used by the nurse, or a patient may use such a pump herself should a nurse not be

Fig. 26.



Breast Pump.

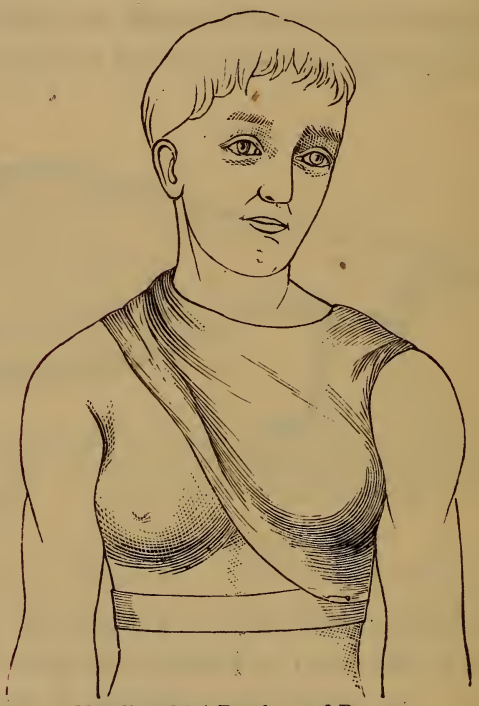
present. Hand pumps are not good, as too much force is apt to be used in making suction—the nipple may thus be torn off. Where a breast-pump cannot be had, a simple contrivance may be resorted to for emptying the breasts which is often very effective. A bottle filled with very hot water may be emptied of its contents, and while still hot the mouth of the bottle closely applied over the nipple.

As the bottle cools the nipple is drawn up into the neck of the bottle, and the flow of milk induced.

Handkerchief bandage of breasts.

When the breasts are pendulous, handkerchief bandages, properly applied, make a good support.

FIG. 27.



Handkerchief Bandage of Breast.

Their application is as follows: "The base of the handkerchief, folded as a triangle, should be placed obliquely across the chest and under one breast, with the apex or summit of the triangle over the

corresponding shoulder; one angle is carried over the opposite shoulder, the other under the axilla, or armpit, of the same side. These ends should be tied on the back of the shoulder, and the apex of the triangle pinned to them."—(Smith.)

Should both breasts need support, a similar bandage may be applied to the other breast. To prevent the base of one or both of these bandages from slipping up, the ordinary handkerchief bandage has been modified in the Woman's Hospital by the addition of a belt, around the waist, of a strip of muslin or ordinary roller bandage, to which the base of the bandage may be fastened by safety-pins.

Modification of handkerchief bandage of breast.

A simple straight bandage, with a compress to lift the outer, pendulous portion of each breast, is sometimes used.

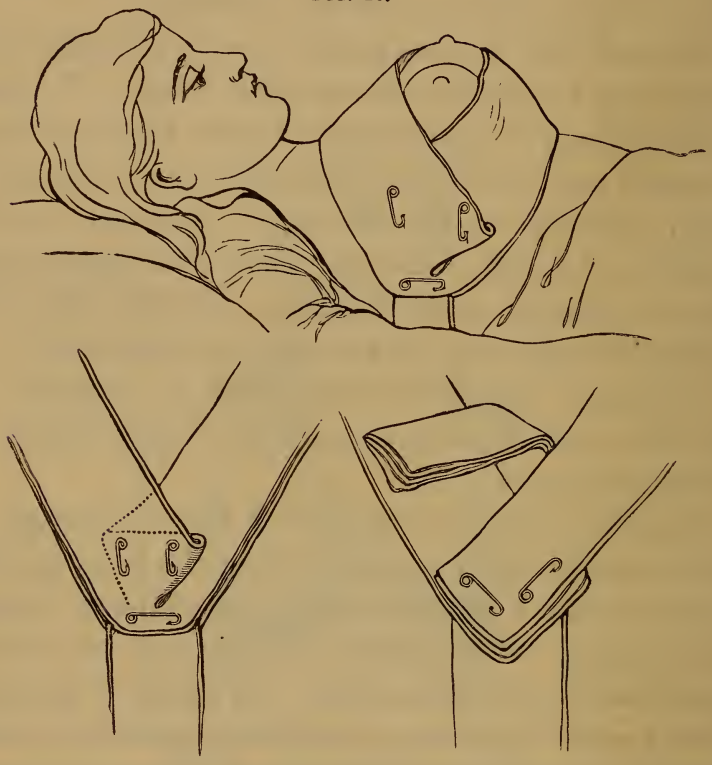
Straight bandage of breast.

Another bandage, which has the advantage of not requiring to be removed when the baby nurses, is the double-Y bandage, used in the Boston Lying-in Hospital. The manner of putting it on is thus described by Dr. Worcester: "A single T bandage is first made by folding a napkin lengthwise so that for an average-sized patient it shall be 32 in. long by 3 in. wide. At the middle of this, and at right angles to it, is pinned, just between its folds, a napkin of the same size, similarly folded. This T bandage is next made into a Y bandage, by making a diagonal fold in the middle of the cross-piece, and

Double Y bandage.

fastening the corners of the plait with safety-pins on the outside. The bandage is now ready to put on. The tail-piece is passed under the woman's

Fig. 28.



Worcester's Y Bandage. The upper figure shows the double Y breast bandage in position; the lower left-hand figure shows how the Y bandage is made. The third figure shows how the double Y bandage is completed by fastening the arms of the Y to the tail-piece on the patient's opposite side.

back, snug up to her armpits, so that the fork of the Y just clears one nipple when that breast is held upward and inward on the chest. The tail-piece

on the other side is carried up on the chest directly over the breast. The arms of the Y are then brought over the chest, one above and the other below the breasts, and their ends pinned to the tail-piece, so as to hold both breasts in similar position. A compress of soft linen may be placed between the bandage and the outside of the breasts and also between the breasts, to prevent their chafing. To keep the bandage from slipping down

FIG. 29.

Obstetrical Breast Support, with Knitted Bosoms.

straps of muslin may be passed over the shoulders and pinned back and front. To keep it from slipping up, it may be fastened to the abdominal bandage." The bandages referred to are very useful while the patient is in bed, but when she begins to sit up and wear ordinary clothing they will be found to be cumbersome. Some such breast support as is shown in Fig. 29 may then be found very useful. It may be obtained at the Dress Reform

Emporium, in Philadelphia, and at similar agencies in other cities.

Gathered breasts.

There is nothing in the care of a lying-in patient for which a nurse receives more blame than in the occurrence of gathered breasts. Abscesses will sometimes come, however, in spite of all precautions, even before confinement. Extreme watchfulness and a prompt reporting of any symptoms of beginning trouble, as chilliness, hardness of the breasts, sore nipples, etc., will do much to avert them. It must never be forgotten that sore nipples, by offering an open surface upon the mother's body, may become avenues of septic infection. Dirty hands or dirty garments touching these surfaces, or poison from the baby's mouth, may thus enter the mother's system. One of the most serious forms of inflammation of the breast may thus result from blood-poisoning. If the breast has once gathered, there will be a tendency for it to gather again. Should an abscess threaten by beginning inflammamation of the breast, the treatment will, of course, be directed by the physician. What milk is in the breast must be drawn out, and some means used to prevent further secretion. Belladonna breast plasters were at one time much used, the circular breast plasters being obtained at any drug store. The belladonna ointment spread on patent lint, shaped to the breast, is preferred by some physicians.

Septic inflammation of breasts.

Simple compression of the breast by a firm bandage is generally sufficient, without the aid of other measures, in the checking of the secretion.

Should the breast gather, lancing is inevitable, and the sooner the better, so that a nurse should keep the physician carefully informed as to the condition of the breast. Flaxseed poultices may need to be applied for a time, both before and after lancing. These poultices, to do any good, should be applied as hot as possible. The nurse can test the heat of the poultice by laying her cheek against it. If she can bear this application without finding it too hot, the patient will also probably be able to bear it. If the poultice be made on flannel it will not lose its heat as quickly as when made on muslin. The poultices will require changing about once in two hours, or often enough to keep them warm; and should be kept up until the abscesses point and are evacuated. The nurse should encourage the patient to have an abscess lanced, and should have prepared, at the time of the operation, the antiseptic solutions preferred for the physician's hands and for washing out the abscess cavity, a syringe, if possible, a pus-pan having a concave side to fit closely under the breast, some charpie (linen threads arranged in bundles for packing abscess cavities), soft towels and some absorbent cotton to be used in place of sponges for cleansing the

breast. Before the operation, the breast should be washed off with an antiseptic solution. Between the applications of the different poultices the breast should be similarly washed off by the nurse. The physician will probably desire to wash out the abscess cavity daily so long as the discharge of pus continues, in which case the nurse should have everything in readiness at the time of his expected visit.

Constant flow of milk.

Sometimes milk runs constantly from the breasts. Much may be done to prevent this by regular nursing. If it persists, the amount of liquid in the food should be restricted. Sometimes the milk runs from the opposite breast while the baby is nursing at one. There is no way to prevent this. Some mothers collect it as it drops in a small bottle or cup and feed it to the baby.

Insufficient milk.

If the mother has only sufficient milk for half the day, the baby had better be artificially fed by day, the breast milk being reserved for the night, as giving less trouble when the care of the child devolves upon her.

After-pains.

After-pains are the same as labor-pains, being caused by contractions of the womb. They are called after-pains because they occur after confinement. A woman, after the birth of her first baby, seldom has after-pains. They may occur with varying severity in women who have previously borne children. If the bladder and the bowels are properly

attended to, and the womb kept well contracted, the patient is not likely to suffer much from after-pains.

These pains seldom last over the second day. Should they do so, it is probable that the patient is threatened with some inflammation.

The occurrence of after-pains should, of course, be at once reported to the doctor, and such measures for relief carried out as he may suggest.

The womb will be found to be in two entirely different conditions with the occurrence of these pains. Hence, we divide the pains into two classes, the "expulsive" and the "spasmodic."

"Expulsive" after-pains.

With expulsive after-pains the womb, as it is felt through the abdominal walls, will be found to be large and soft, and the patient will often pass clots. The bladder will be frequently found to be over-full and the womb pushed high up or to one side. The indications are to empty the bladder and to secure good contractions of the womb. After the bladder is emptied the pain may be relieved by the application of a hot poultice over the lower part of the abdomen, and simple fluid extract of ergot may be given, if desired by the physician (½ teaspoonful every three hours), until the womb is well contracted. A nurse should never give any medicine without the direction of the physician. Before entire relief is obtained it may be necessary for the physician to break down and wash out the clots within the womb.

Intra-uterine injections.

The nurse should slip drawers and stockings on the patient in preparation for this operation, as she may need to lie across the bed with her hips drawn to its edge. A bed-pan, syringe, antiseptic solutions, receptacle for waste water, and rubber protective for bed and floor should be prepared.

Spasmodic after-pains.

When spasmodic after-pains occur, the womb is felt in the lower part of the abdomen as a firm, round ball of stony hardness. This is caused by a spasm of the muscle fibres in the womb. The remedies which would help expulsive pains would only aggravate this condition. Something must be employed which will quickly relax the spasm. The most efficient agent is chloroform liniment, which may be applied on flannel over the lower part of the abdomen. The active counter-irritation thus produced will give relief. Should the spasm be very severe, the physician may apply pure chloroform sprinkled on blotting-paper for a few seconds over the lower part of the abdomen until it well reddens the skin. Should no chloroform liniment be at hand, a warm flaxseed poultice may help to some extent, though not so efficient, as a rule.

The report.

A careful report should be kept by the nurse, from which the physician can learn all that has transpired in the intervals of his visits.

Sheets of paper ruled and having headings, as in the following plan, are used in the Woman's Hospital.

DIAGRAM SHOWING NURSE'S REPORT. ABOUT ONE-HALF SIZE.

Patient's Name..... *No. of page*.....

DATE.	HOUR.	PULSE.	TEMP.	RESP.	FOOD.	MEDICINE AND TREATMENT.	URINE.	REMARKS.

Name of Nurse.....

Special symptoms to be reported.

The occurrence of pain, any complaint of chilliness or a decided chill, rise of temperature, rapid pulse, sleeplessness, headache, want of appetite, etc., should be carefully noted and brought to the physician's attention.

For the first week or ten days it is well to take the temperature and pulse in the morning, at noon, and in the evening; after which, if the patient is doing well, the morning and evening temperature and pulse will be sufficient.

Chill.

Should the slightest complaint of chilliness be made, the nurse should place extra covers around the patient, hot water bottles, if necessary, to warm her up, and at the same time give her a warm drink, as a cup of hot tea or even hot water.

Rise of temperature.

The *temperature* should always be taken after a complaint of chilliness, and taken quite frequently, as every hour or two, when, if it be found to be rising, a note should at once be sent to the physician, who may want, under the circumstances, to see the patient at once or institute some new line of treatment.

Pains.

Pain may be temporarily relieved by the application of a hot flaxseed poultice. Grave inflammatory and septic troubles are ushered in by such symptoms as the above, hence no time should be lost in notifying the physician of their occurrence.

Puerperal fever.

The use of blisters, poultices, packs, vaginal injections, and medicinal remedies required in the treat-

ment of the various forms of "puerperal fever" must of course be in exact accordance with the physician's directions.

Such troubles are generally septic, that is, arise from blood-poisoning; and one very important duty of the nurse will be to see that the patient takes sufficient nourishment to combat the poison in the blood.

Stimulants should never be given without a physician's advice, but when ordered great care should be exercised in their faithful administration. Egg-nog, milk-punch, whiskey-punch, wine-whey, milk in the various liquid and semi-liquid preparations, beef-tea, broths, etc., will be called for. The nurse should be ready with devices to tempt her patient to eat, and thus give the most important aid to the arrest of the disease. The support of the strength, with extreme cleanliness and thorough antisepsis, will do much to arrest the course of the terrible maladies due to blood-poisoning.

Puerperal ulcers.

The existence of any sores about the vulva or vagina, when discovered by the nurse, should at once be reported to the doctor. These are especially dangerous when they take on a grayish surface, as this indicates that they have already become infected by poison. If the disease is not arrested here, the whole system may be involved.

Milk leg.

A swelling of one or both legs sometimes comes

on after delivery. It is ushered in by acute pain and lines of redness accompanying the swelling—the vessels of the groin, under the knee or in the leg will often feel like cords. This is due to an inflammation involving the veins. Sometimes blood clots form in the veins, which may be dislodged and carried to the heart and lungs, when they are the source of the gravest danger. Sometimes abscesses form in the leg. The great danger of clots being carried in the blood current makes absolute quiet imperative. The patient should lie flat on her back, and the limb be elevated on pillows or on an inclined plane, such as the fracture-box used in certain fractures of the lower extremity.

The application of some soothing ointment, as iodine and belladonna ointment in equal parts, over the cord-like veins, a hot flaxseed poultice being kept over the ointment, will help to relieve pain and diminish inflammation. The whole limb should be kept warm by a wrapping of cotton batting. The limb is most comfortable when slightly bent at the knee joint. Should the weight of the bed-clothing cause pain a cradle may be made of barrel hoops for lifting them off the limb. The cradle is also very useful in cases of peritonitis when the same difficulty exists.

Bed-sores.

Lying-in women should not be subject to bed-sores, but should some complication occur, as in

some form of blood-poisoning, or should some other disease attack the patient during this time, necessitating long lying, special care is necessary to prevent bedsores. The parts of the body subjected to most pressure should be kept thoroughly dry and rubbed with alcohol and alum (a saturated solution) once or twice daily. A little cosmoline may then be rubbed into the skin, or some drying powder, as zinc or starch, may be used. When a sore occurs it must be dressed, according to the physician's order, with zinc ointment or cosmoline. All pressure should be kept off it, if possible, by the adjustment of pads and pillows or a rubber-ring cushion.

Puerperal mania. Puerperal mania is a form of mental trouble which may affect lying-in patients, particularly when they are exhausted from any cause, whether it be mental worry or physical ill-health. In true mania the patient may be violent and very difficult to control. In the melancholic type of this trouble she is exceedingly depressed, distrusts her best friends, and cannot be roused to take an interest in her surroundings.

Removal of infant. As soon as it is noticed that the patient's mind is not well balanced the baby should be removed from the room, only being brought to the mother when asked for. The nurse should then keep a close watch over it, as one of the chief symptoms of this

trouble is a strong aversion to the baby and desire to destroy it.

Importance of watchfulness.

It should never be forgotten that an insane patient *should not be left alone for a moment.* The insane are very cunning, and though apparently asleep, may be but watching their opportunity to indulge in some mad freak, as jumping out of the window, dashing down the stairway and out of doors, etc. The windows, therefore, should be in some way protected. A nail or screw may be driven into the window-casing so as to prevent the raising of the sash, except so far as ventilation requires. The door had best be kept locked, the nurse keeping the key.

Treatment.

The treatment will mainly consist in keeping up the nourishment and in kind, gentle, tactful management. The patient should be made to interest herself in outside things, by the judicious turn given to the conversation by the nurse, by engagement in some kind of fancy-work, or in games which will help to divert the mind.

She should not be crossed, neither should she be deceived. The nurse should so manage her as to inspire a thorough confidence and liking toward her on the part of the patient. If she has not these, she had best give up the case, as she will not be able to help the patient.

Should the patient absolutely refuse to eat, the

physician may direct the nurse to introduce the food into the stomach by means of a rubber tube passed through the nostril and down the œsophagus, or gullet. Care should be taken to do no injury in the introduction of this tube, which should be well greased with cosmoline and made to follow closely the direction of the passages it is made to enter. A funnel is then connected with the outer extremity, through which the milk or broth, etc., may be poured into the stomach. Forced, or artificial feeding.

Should the patient be exceedingly restless and disposed to jump out of bed, to her own detriment, she may be fastened into the bed by means of a sheet, doubled lengthwise, placed over the middle portion of the body from the arm-pits to below the knees and carried under the bed, to be fastened either beneath the bed or to one side of it. The feet may be bound together loosely at the ankles by a piece of roller bandage and fastened to the footboard of the bed. The hands may be bandaged together (being placed the one on top of the other) by means of a roller bandage, though this is not necessary except when they are used to do herself injury. Where patients are so violent as to need such restriction, however, it is better to have them removed to some institution for the insane as soon as possible, where there is better provision made for their management. The use of sedative reme- Securing of maniacal patient. Transference to an institution for the insane.

dies by the physician will generally prevent the necessity for resorting to such extreme measures for confining the patient in ordinary cases.

Protection from poisoning.

Medicines should, of course, never be left in the patient's room, even when the nurse is there, unless under lock and key. The duration of this malady varies from weeks to months, in some cases becoming chronic. Convalescence is generally very gradual. Patients may have long periods of lucid thought, and seem apparently well, only to unexpectedly return to their vagaries; so that the nurse should never relax her quiet vigilance while in charge of the case.

The first sitting-up after delivery.

The old, time-honored belief that a woman should sit up on the ninth day is subject to many exceptions, which should be understood by the nurse as well as by the physician. The true gauge is the progress of involution. This may be determined by the height of the uterus (which ought to sink behind the pubic bone before the patient is allowed to sit up) and by the character of the discharges. So long as there is any blood in the discharge the patient should not sit up, for this is an indication that involution, or the shrinking of the womb, is not going on properly. This condition is known as "sub-involution," and if neglected may lead to chronic disease of the womb. The use of the recumbent posture, frequent hot injections

Subinvolution.

given by the nurse, or electricity administered by the physician, may be necessary to overcome it. Let the patient understand the wisdom of her confinement to bed under such circumstances, and she will generally yield gracefully to the necessity. The first sitting-up should be in bed, the patient's back being supported by a bed-rest. Should no bed-rest be found in the house, a chair turned upside down, with its back toward the patient, over which a pillow is placed, offers a very good substitute.

After sitting up in bed for a day or two, from a half-hour to an hour if there be no discharge, the patient may have her flannel wrapper and stockings and bedroom slippers put on, and be allowed to sit up in an easy chair. It must be remembered that this is the time when the patient will be most susceptible to cold, therefore every precaution must be taken to prevent her exposure to draughts. Should the patient seem to grow tired before the half-hour or hour is up, she should be put back in bed. The interval for sitting up may be gradually increased from day to day, until she is up the greater part of the day. No going up and down stairs should be permitted until the physician sanctions it, which is, in ordinary cases, about the fifth or sixth week, when one such journey a day is generally permitted.

Observance of physician's orders.

That there may be no misunderstanding between physician and nurse, the orders of the physician in every case should be immediately set down in writing when given, so that by constant reference to them the nurse may do her full duty by the patient. It is well, for this purpose, to have a piece of paper ruled so that at the right side there shall be two columns, one headed A. M., the other P. M. The stated hours for the administration of medicine or carrying out of treatment may then be placed opposite the special directions for each, and a pencil mark be drawn through the figure representing the hour when the matter has been attended to.

Order board.

An *order board*, as used in the Woman's Hospital, is prepared as follows:—

ORDERS FOR TREATMENT OF MRS. RICHARDS, OCT. 10TH, 1889.

	A. M.	P. M.
Full breakfast, dinner and supper, ...	6	12, 6
A teaspoonful of medicine (light or dark), .	6.30	12.30, 6.30
Sponge bath, ...	10	. . .
Lunch of gruel or beef-tea, ...	9	3
Glass of milk at bedtime, ...	. .	8
To sit up half an hour with bed-rest, . . .	. .	2

Nurse's Name.....

A fresh board should be prepared for each day's work. In ordinary cases, which run an uneventful course, these boards, with the hours crossed off, serve the purpose of a report as well.

CHAPTER X.

CHARACTERISTICS OF INFANCY IN HEALTH AND DISEASE.

Average weight of new-born baby.

Average length.

A healthy baby, if born at full term, should weigh 3250 grammes, or about 7 lbs. Its length should be, on an average, 50 cm., or 20 inches.

Peculiarities of development.

The head and trunk of the child are developed out of proportion to the limbs, so that the navel is below the middle of the child's body. This greater development of the upper part of the body is due to the fact that in the womb this portion of the child's body receives the greater amount of nourishment. The subsequent growth consists largely in the development of the lower limbs.

Skin.

The skin of a newborn baby varies in color from a pink to a decided red. The redness is more marked in premature babies. From the third to the fourth day this redness disappears, and the

"Baby jaundice."

peculiar yellowish tinge, known as "baby jaundice," appears, as a result of the changes in the circulation. This is not true jaundice. This yellowish tinge of the skin should disappear by the end of the second week. At the same time that the skin begins to change color, from the third to

the fourth day, it begins to scale or peel off. This is most noticeable about the fifth day, and lasts about sixteen days.

The form. The baby's limbs should be plump and well-rounded. The abdomen is prominent, as compared with the chest.

Shape of head. The shape of the head varies very much. At times it is perfectly rounded, again it will be elongated and oval-shaped.

Effect of pressure. Pressure during labor, either from the walls of the pelvis or as a result of the use of instruments, will cause at times considerable temporary distortion in the shape of the head. To allay swelling and prevent discoloration induced by bruising, fomentations may be used, either of simple hot water or hot water containing a little fluid extract of hamamelis.

When there has been a good deal of pressure on the baby's head during the birth, the bones will sometimes override each other, and this will be shown by elevations or ridges upon the baby's head, which soon disappear when the head is no longer subjected to pressure. These ridges, which are converted into soft grooves on the removal of pressure, indicate the separation between the different bones of the head, and are called "sutures." Sutures. The larger soft places are called "fontanelles." The largest is on top of the head just above the fore- Fontanelles.

head. It is called the "anterior fontanelle," commonly known as "the opening of the head." It is about large enough for the tips of two fingers to cover, when of normal size, and is kite-shaped. A much smaller three-cornered fontanelle is found at the back of the head and two behind the ears. These very soon fill up with bone.

Closure of anterior fontanelle.

The large anterior opening does not close entirely until a child is about eighteen months of age. Should it remain open longer, it is a sign of constitutional weakness. In a healthy baby the surface of this fontanelle should be on a level with the surrounding bones of the skull. A slight pulsation may be noticed in it, due to the pulsation of the blood vessels in the brain. Should the fontanelle be much depressed at any time, it would indicate a low state of vitality. Care should be taken not to permit any undue pressure on this part of the baby's head, as the brain here lies very near the surface.

Pulsation of fontanelle.

Depression of fontanelle.

Avoidance of pressure.

The fashion some old monthly nurses have of trying to shape the head by the pressure of the hands is dangerous, as the brain may be thus injured. As the head bones are soft, the child should not be allowed to lie too continuously on either side or on the back, as this will cause flattening of the part pressed upon.

Changes in weight.

For the first two days of a baby's life it loses weight, but by the third day it begins to gain, and

by the end of the first week it should weigh what it did at birth. The average daily gain is 30 grammes, about 1 oz. The following facts concerning the early changes in weight are obtained from Gregory:—

Average daily gain.

Loss and gain.

An infant born at full term weighs from 6 to 7 pounds, 7 pounds being an average weight. For the first two or three days of life there is a loss of 4 ounces to 7 ounces, then a regular gain, so that by the eighth to the ninth day the initial loss has been made good. The following figures express the average daily loss and gain during the first six days of life:—

First day, ...	Loss of	139	grammes,	or nearly	5 ounces.
Second day, . . .	"	64	"	"	2¼ ounces.
Third day, . . .	Gain of	33	"	about	1 ounce.
Fourth day, . . .	"	50	"	"	1¾ ounces.
Fifth day, . . .	"	50	"	"	1¾ ounces.
Sixth day	"	36	"	"	1¼ ounces.

The child's weight should be doubled in the fifth month, and trebled in the twelfth month. The baby should be able to hold up its head in the sixteenth week, at the same time sitting up. It should stand by the thirty-eighth week. It should "take notice" and be able to grasp things by the third to the fourth month.

It is important that a nurse should know the

above facts as to the child's development, to be able to report satisfactorily concerning its condition to the physician in attendance.

Sleep. A large proportion of the time of early infancy is spent in sleep. The more premature the baby, the more constantly does it sleep. During sleep the eyelids should be tightly closed. A partial separation of the lids, showing the whites of the eyes, is an indication either of some disease, or of pain, from whatever cause.

Respirations. The respirations of a healthy baby when awake may be very irregular, some inspirations being shallow and others deep—at times hurried, and again slow. The only time when the respirations can be satisfactorily counted is when the child is asleep, for then the breathing is more regular. The rise and fall of the abdomen may then be noted (for the breathing of an infant is abdominal). The number of respirations in a minute average 44. So quiet is the healthy breathing of early infancy that there is no motion of the nostrils or of the lips, or even of the chest, to indicate the incoming and outgoing of air. Fever, colic and lung trouble will greatly increase the number of respirations in a minute, making them mount up to 60 or 80, or even higher. Nervous excitement has a similar effect, though this is temporary.

Increase in respirations.

In brain trouble, a slowing of the respirations

occurs, so that they may get down to 8 in a minute. When the act of breathing is painful a moan or cry accompanies each act of respiration. The expansion of the nostrils with each inspiration indicates a want of sufficient air space in the lungs. In connection with any lung trouble a bluish coloration of the lips and face generally is a bad symptom, as it indicates that sufficient air does not enter the lungs to purify the blood.

Slowing of respirations. Painful breathing. "Cyanosis."

Little reliance is to be placed upon the pulse of a baby as indicative of disease, for it is characteristic of the infantile pulse that it is very rapid, very easily affected by external or internal causes, and notably irregular. The average pulse of the newborn baby is 140. If a baby is well-nourished, it is too fat to enable the pulse in the radial artery to be counted. Hence the pulse is more easily obtained in the temple, or at the ankle. If not thus readily obtained, the heart beats may be counted by holding the hand over the baby's heart. The temperature of a child of this age is also subject to rapid changes, the result of slight causes. The average temperature is 99° Fahr., but a cold or an attack of indigestion may cause a sudden increase, with as sudden a return to normal when the cause is removed.

Infantile pulse. Temperature.

A sub-normal temperature is an indication of lowered vitality, the result of some drain upon the

Sub-normal temperature.

system, as of an exhaustive diarrhœa, or of some constitutional weakness. This fall of temperature is a dangerous symptom in infants. The tip of the nose and the extremities of the child, if cold, also indicate a condition of low vitality, and require that the child should receive very especial care from the nurse as to the supply of food and warmth. In fever the back of a child's head feels very hot, as also do the palms of the hands. The cries of a child form a special language by which its needs may be made known. Every nurse should learn to distinguish the peculiarity in the different kinds of cries, so as to meet the varying demands thus indicated. A healthy, well-trained baby rarely cries, unless hungry, when the cry will be constant and very persistent until the want is satisfied; the upper part of the body is moved at the same time, especially the arms and head. The cry induced by ear-ache is also unappeasable, and generally accompanied by a drawing of the hand up to the head. A similar gesture accompanies the cry induced by brain trouble, which is a shrill scream, often waking the child during sleep.

Symptoms of lowered vitality.

The language of a cry.

Of hunger.

Ear-ache.

Brain trouble.

Lung trouble.

A cry accompanying a cough is an indication of pain in the chest. The paroxysmal character of colic is indicated by the characteristic cry which accompanies it—a sharp, sudden cry—the limbs at the same time being drawn up toward the abdomen.

Colic.

An evacuation of the bowels may precede or follow the cry.

Sore mouth.

If, in nursing, a baby seizes the nipple by the mouth and drops it suddenly with a cry, doing this repeatedly, there is in all probability some soreness of the mouth, which should be discovered and treated.

Secretion of tears.

However heartrending the cry, the baby does not secrete tears until the third month of infancy. Hence the common saying, that a baby cannot suffer pain because it sheds no tears while crying, is not supported by fact.

Facial expression.

A wrinkling of the forehead vertically, produced by drawing the eyebrows together, indicates pain about the head. A sharpening or play of the nostrils exists in lung troubles. A drawn look about the mouth is found with digestive troubles, as flatulent colic.

Bowel movements.

The stools of a very young baby fed on breast milk should be of a yellow or orange color. Three or four evacuations a day are natural. They should contain no curds. Stools of bottle-fed babies are lighter and more offensive.

Urination.

The number of times a new-born baby urinates will vary much with the weather and the conditions under which the child is placed. It is not unusual in cold weather for the napkin to need changing almost every hour. Healthy urine should not stain the napkin.

CHAPTER XI.

THE AILMENTS OF EARLY INFANCY.

Definition of infancy.

It is not proposed in this chapter to take up all the ailments of infancy, for the term "infancy" comprises a time beginning with the birth of the child and lasting until the first dentition.

The obstetric nurse remains with the patient from four to six or eight weeks. During this time many deviations from the normal, healthy state may be met with in the child, and these she should be quick to observe and know how to manage.

Prematurity.

One of the most important conditions of this period is "prematurity"—a result of the too early birth of the child.

Viability.

A premature birth is one that occurs at any time after the child is "viable," that is, capable of living after its birth. The term of viability has been set at twenty-eight weeks, or seven lunar months. Deliveries occurring previous to this time are called "miscarriages."

It may be that with improved methods of management the period of viability may be placed

at an earlier date, but this is as yet a matter for proof.*

It has generally been conceded that a child born at six lunar months cannot live, that at seven months it stands little chance, that at eight months its chances are better, and at nine still better.

The popular notion that an eight-month baby (counting the calendar months) does not stand so good a chance of living as a seven-month baby is altogether wrong. Great care is needed for premature babies. They especially need regular feeding and to be kept very warm. The skin, being thin and delicate, will also require very careful attention.

The "couveuse."

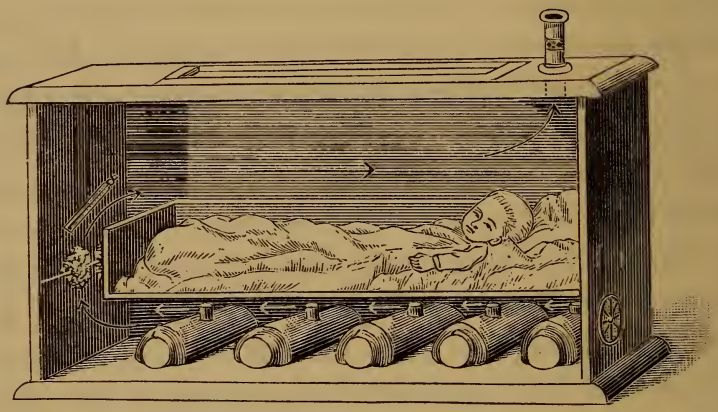
Until within a few years the matter of keeping the baby sufficiently warm was exceedingly difficult to manage. The French invention of the "couveuse," or "brooder," has simplified the matter very much. It was first used in some of the French lying-in hospitals in 1881. Since then it has come into quite general use in France, being employed even in private houses. Many different forms of the apparatus now exist. The one most commonly used in France is Tarnier's invention. This has

* The French claim that by means of gavage and the couveuse, or hatching-cradle, the actual period of viability has approached six months of intra-uterine life.

been used for some time with great satisfaction in the Woman's Hospital, of Philadelphia.

It consists of a wooden box, whose interior is divided into an upper and lower compartment. There is a space about four inches wide at one end of the upper compartment which communicates with

FIG. 30.



Tarnier's Couveuse.

the floor below. Here two or three large sponges on a wire stem are placed. The lid of the box at the opposite end contains a chimney, in which a helix rests on a pivot.

The upper compartment of the box is intended for the baby, in the lower one are several stone jars, which are to be kept filled with very hot water. At

the end of the box furthest away from the open space which communicates with the chamber above, a register is fixed, which may be opened or closed at will. The air enters through the register, is heated by passing over the hot stone jars, moistened by the wet sponges in the space between the upper and lower chambers, and finds its exit from the chimney, in which it keeps the little wheel revolving. The motion of this wheel indicates whether the circulation of air within the couveuse is perfect or not. A thermometer fastened to one side of the interior of the box assists in the regulation of the temperature, which should be kept at from 85° to 95° Fahr., according to the indications in each case. A frame containing a pane of glass forms the top of the box. Through this the record of the temperature and the condition of the child can be watched.*

Directions for use.

The following directions for the use of the couveuse are given by Dr. Auvard, who superintended its introduction into the Maternité at Paris :—

To keep up an even temperature, one of the stone jars should be refilled about every hour, hour and a half, or two hours.

The apparatus being more difficult to heat when

*Dimensions of couveuse for a single infant: width, 36 centimetres; length, 65 centimetres; height, 55 centimetres. For twins a larger case is necessary, and a reservoir which holds a correspondingly greater amount of hot water.

it stands in a draught of air, it should be placed so as to avoid this.

Should the temperature rise too high, the cover may be slipped down a little so as to allow of the entrance of air from above, or the inferior register may be opened so as to admit a larger quantity of air. The partial closure of the register so as to admit less air would help to raise the temperature when it tends to fall below the desired point, as also would the addition of hotter water to the jars.

The child should be placed in the upper compartment of the couveuse as in its cradle, being removed simply for nursing, its bath and toilette. When removed from the couveuse, care should be taken to have the temperature of the room sufficiently warm. Auvard sets this temperature at 61.2°. We should be inclined to require a higher temperature, as from 70° to 75° Fahr.

The length of time the child remains in a couveuse will vary from fifteen days to three weeks, a month, or even more. It should not be removed permanently until it has acquired sufficient vigor to live in the ordinary atmosphere of the apartment. To accustom the child to this atmosphere, it should, as it grows stronger, be removed for an hour at a time from the couveuse during the warmest part of the day.

It is best to continue the use of the apparatus at

night for some time after the child becomes accustomed by day to removal from the couveuse, for the danger of chilling from changes in the atmosphere is greater at night.

Auvard recommends the use of the couveuse in all cases where the vitality of the child is enfeebled either by external causes, as cold, or internal causes, as prematurity, congenital feebleness, cyanosis, or "blue disease," wasting, or other general maladies enfeebling to the new-born.

To overcome the difficulty in the management of this couveuse, owing to the necessity for the frequent renewal of the hot-water jars, Auvard has devised an improvement, which is shown in Figs. 31 and 32.

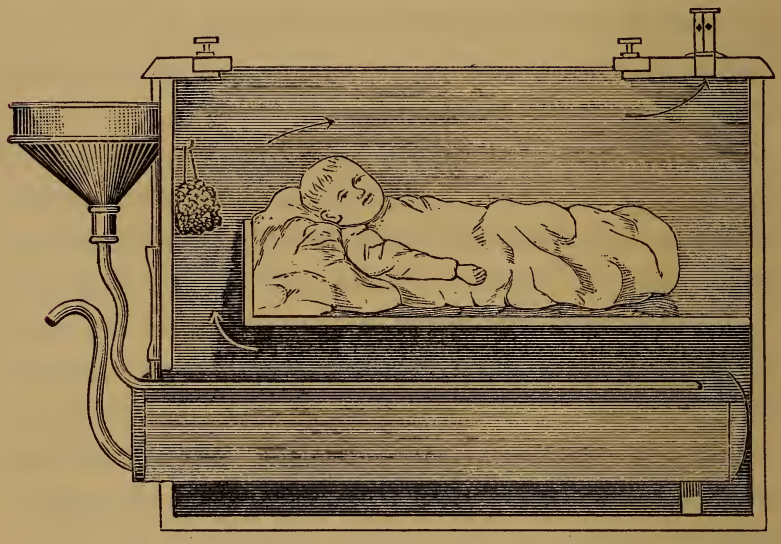
A cylindrical reservoir of metal takes the place of the hot-water jars in the lower compartment of the couveuse. This reservoir is filled by means of a metallic funnel fastened to one end of the box and communicating with the cylinder through a metallic tube.

The overflow of the cylinder is provided for by a curved metallic tube at the lower part of the cylinder, beneath the inlet through which the reservoir is filled.

The air enters by a register on one side of the couveuse instead of at the end, as in Tarnier's apparatus. The other portions of the apparatus are the same as Tarnier's.

The metallic cylinder is capable of holding ten litres of liquid (a litre is a little over a quart). To start the apparatus, about five litres of boiling water should be poured in, after which three litres may be poured in every four hours. When ten

FIG. 31.



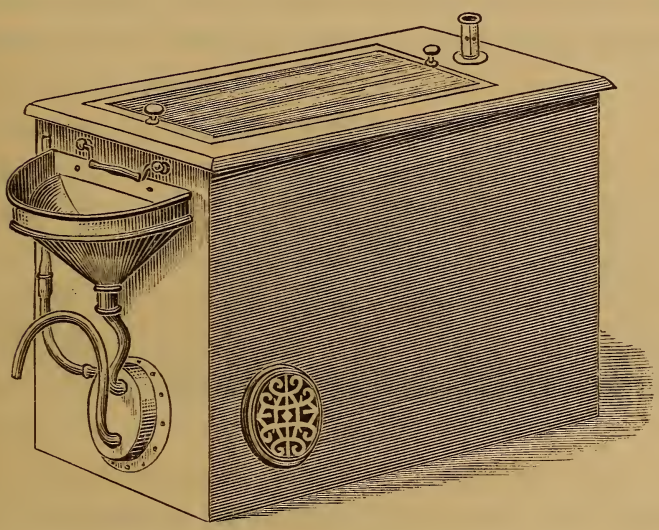
Auvard's Couveuse (Interior View).*

litres are contained in the cylinder, the overflow-pipe carries off the excess. Auvard suggests having two vessels, capable of holding three litres each, keeping one under the escape-pipe and the other over the fire, reheating the water in the ves-

* *Archives de Tocologie.*

sel filled by the escape-pipe and having it in readiness for the next change. The two vessels may be thus used alternately, and but little time consumed in the heating of the apparatus as compared with that required in the use of Tarnier's invention.

Fig. 32.



Auvard's Couveuse (Exterior View).

To empty the cylinder, a rubber tube is attached to the escape-pipes, by which it is made to act as a siphon—a small quantity of water poured into the cylinder through the funnel being sufficient to start the liquid.

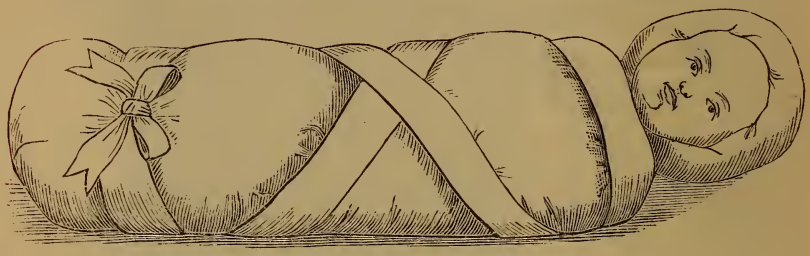
Before the couveuse was known premature

Cotton swaddling.

babies were swaddled in cotton, in order to be kept sufficiently warm. The directions for doing this are as follows:—

Take a square baby-blanket and place it diagonally on the table or bed. Turn down one corner for four inches distance, to come up over the baby's head. Spread over this blanket a lap of raw cotton. Have the baby's napkin and binder on and a flannel undervest. Make a cap out of the cotton,

Fig. 33.



Swaddled Baby.

fitting it over the baby's head and bringing it down well under the chin. Then roll the baby up in the cotton lap. Bring the blanket around this firmly so as to hold it, the portion of the blanket on the baby's right being brought over and tucked in on the left side, the portion on the left being correspondingly folded over toward the right. The corner of the blanket left at the feet is then folded up over the front, and the whole held in place by

means of a strip of muslin bandage or ribbon. The bandage is first applied beneath the chin, crossed under the back, again crossed in front, the ends being brought forward to fasten in a bow-knot at the feet.

The great disadvantages of this method may be seen in the restriction it gives to the movements of the child's limbs and the difficulty of determining when the child's napkin needs changing, also the frequent exposure of the child during these changes to the ordinary atmosphere.

Protection of skin.

The skin of a premature baby should be well greased after every bath, or some oil, as cotton or sweet oil, may be used, and will serve the double purpose of protecting the skin and giving nourishment by absorption.

Food.

The child should be fed every hour. As it is usually too weak to suck, it is safer to feed the baby with a spoon or with a dropper, to make sure of its obtaining a sufficient amount of food. From one to two teaspoonfuls should be given every hour. Breast milk is, of course, the best. It may be drawn from the mother's breast and fed to the child while warm. The nurse should introduce her little finger into the child's mouth and allow the milk to trickle slowly down the finger so as to enter the mouth drop by drop, while the child sucks the finger. Should the mother have no milk,

the first week's feeding recommended by Dr. Starr, or sterilized peptonized milk diluted two-thirds with boiled and filtered water, should be used—if no wet-nurse can be had as a substitute.

Gavage.

Should the baby drink badly and throw up a large proportion of the liquid given to it, "gavage" may have to be resorted to. The physician must authorize the nurse to carry this out, for she should never undertake it otherwise. The directions for practicing gavage, as given by Dr. Louis Starr, are as follows:—

The apparatus used is quite simple, being nothing more than a urethral catheter of red rubber (No. 14–16, French), at the open end of which a small glass funnel is adjusted. The infant upon whom gavage is to be practiced is placed on the knee, with its head slightly raised; the catheter, being wet, is introduced as far as the base of the tongue, whence, by the instinctive efforts at swallowing, it is carried as far down as the œsophagus (or gullet) and into the stomach.

The liquid food is next poured into the funnel, and by its weight soon finds its way into the stomach. After a few seconds the catheter must be removed, and here is the great point in the operation; it must be removed with a rapid motion and at once, for if it be withdrawn slowly all the food introduced will be vomited.

Mother's milk is the best for gavage, as at any time, but other kinds of food may be used. The amount given and the number of meals will vary with the age and strength of the child. From a teaspoonful to a dessertspoonful at one time is sufficient for a very young child, given every hour. Too much food would produce indigestion. As the child grows stronger this mode of feeding may be made to alternate with nursing. Diluted sterilized milk peptonized may be used for the alternate feedings.

Colic. Colic is a very troublesome affection of infancy. It corresponds to the dyspepsia of grown people, and indicates that the food is either improper in quality or quantity. A colicky cry is a sudden, sharp cry, the baby drawing up its feet and legs at the same time. The feet are generally cold, and one indication for treatment is to warm them; warm socks or woolen stockings should be worn, or hot bottles applied to them.

Counter-irritation and warmth. The abdomen should also be kept warm by the application of heated flannels, or a spice poultice wrung out in hot whiskey, or a flaxseed poultice, and kept applied until the baby gets relief.

Spice plaster. To make a spice plaster, a teaspoonful each of ground allspice, cloves, cinnamon, ginger, and cayenne pepper, with four teaspoonfuls of flaxseed meal, may be quilted into a bag of flannel, 4 x 8 inches, which will fit entirely over the baby's abdomen.

When the spicy smell is lost the plaster is no longer good for use.

Oil inunction.

Warm oil rubbed gently in over the abdomen for ten to fifteen minutes at a time, will often give relief by leading to the expulsion of the wind causing the pain.

Anise seed tea.

If the application of heat is not sufficient, anise-seed tea should be given. It is made as follows :—

Over a half-teaspoonful of anise-seed pour a half-teacupful of boiling water. Allow it to steep a few minutes, until the water tastes strongly of the anise-seed. A half-teaspoonful of this may be given warm, every ten minutes, until the baby has had four doses. This brings up wind from the stomach, and thus gives relief. Simple hot water will help in the same way should anise-seed not be on hand. Catnip tea may be made and used according to the same directions. These teas are preferred to the drop-doses of gin so frequently given.

Frequent stools.

Frequent stools do not always indicate diarrhœa. For the first six weeks of its life a child averages three or four movements every twenty-four hours, after which it has about two a day until it is two years old.

A natural passage for an infant would be of a mushy consistency and a yellow or orange color. It should contain no curds. Bottle-fed babies have

whiter and more offensive stools than breast-fed babies.

In diarrhœa there is a change in consistence or appearance. A liquid stool, or one colored green, or white, or like putty would be abnormal. The presence of curds also would show an inability to digest the food properly.

Modification of food.

If, therefore, these curds exist in the stools, or the matters vomited be curdy, the indication would be to use some alkali or a small quantity of some thickening substance, as barley-water, gelatine, or one of the prepared foods intended to serve the same purpose, or the milk may be peptonized.

Lime-water.

Lime-water is the alkali most usually employed. Lime-water contains but about half a grain of lime to the fluidounce of water, so that at least a third of the feeding should be lime-water where it is used to correct indigestion. To make lime-water, a piece of lime about the size of the fist should be placed in an earthen vessel; about three or four quarts of water may be poured over this, strained thoroughly, and then allowed to settle. The water should be used only from the top of the vessel. It is better to filter it before use. The vessel may be kept filled with water so long as any of the lime remains in it, when it will be necessary to add more lime.

When lime-water cannot be obtained, a small powder of baking soda—three or four grains—may

be added to the nursing-bottle. These rules apply when the baby is artificially fed. Should the baby be nursing the breast a teaspoonful of lime-water mixed with an equal quantity of boiled and filtered water may be given it before each time it is put to the breast.

Barley-water.

Of the thickening substances used to help in the digestion of food, barley-water is one of the best. To make barley-water a gill of boiling water should be poured over a teaspoonful of washed pearl barley, freshly ground in a coffee-mill and boiled for a quarter of an hour, then strained. It should be mixed with milk in the proportions required, two-thirds, a half, or one-third.

Gelatine.

Gelatine is sometimes used instead of barley-water. A piece an inch square of plate gelatine is put into a half a tumblerful of cold water and allowed to stand about three hours. This may then be turned into a teacup and set in a pan of hot water and boiled. The gelatine thus dissolves, and, when allowed to cool, forms a jelly, of which one or two teaspoonfuls may be added to a feeding.

Infants' "foods."

Of the various kinds of "infant's food," those in which the starch has been made into dextrine or grape sugar are the best. "Mellin's Food" and "Horlick's Food" belong to this class. A teaspoonful of these dissolved in a little hot water—about a tablespoonful—may be added to the milk

for the feeding. These starch foods cannot be well borne by a child before it is five or six months old, as a rule.

Condensed milk. Condensed milk contains a large proportion of sugar, hence tends to make fat. It is not as nourishing as many other forms of food. Babies fed on it, though large, are generally far from strong, and are very apt to suffer from indigestion.

Dr. Broomall's dietary. A careful regulation of the diet, as suggested by Dr. Anna Broomall, for the early weeks of infancy, with the addition of barley-water, lime-water or gelatine as indicated, in place of plain water, has been found most satisfactory in the care of infants in the Woman's Hospital.

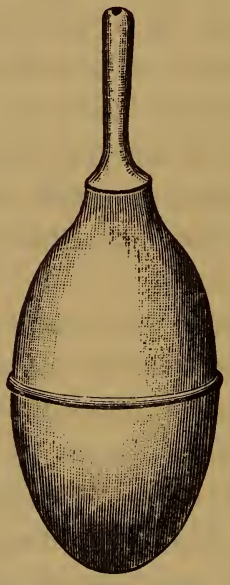
Constipation. Constipation is not an infrequent occurrence in infancy. Its management consists principally in the use of mechanical irritants for stimulating the bowels; thus a soap suppository, an injection of warm oil or water, gentle friction over the bowel, especially following the direction of the large bowel from right to left, are among the most effective methods for overcoming this condition.

The soap suppository is made by taking a piece of Castile soap, about one inch long, and shaping it into a cone and making it very smooth, so that it will not be larger around than the end of the little finger. This should be gently insinuated about

half its length into the bowel and held in the opening until it excites the bowel to act.

The bowel injection may be given by means of the single-bulb syringe, known as the "eye and ear syringe." The bulb holds about two table-

FIG. 34.



Single-bulb Syringe (Starr).

spoonfuls of liquid. This may be warm cotton-seed oil, sweet oil, or warm water. The nozzle used should be small, smooth and well oiled. It should be very carefully introduced into the bowel, being directed a little to the left side, and the bulb gently squeezed to force the contents into the bowel. It

is best that the liquid should be retained for a little time before it is forced out. The keeping up of a slight pressure over the entrance to the bowel for a short time will aid this.

Rubbing the abdomen for about ten minutes (either with or without oil) in the direction of the large bowel—that is, upward on the right side as far as the border of the ribs, then across to the left side and down this side to the pelvis, is often efficient.

Of medicinal measures, glycerin, gluten or cocoa-butter suppositories may be resorted to, or manna may be given, a piece the size of a pea in the child's milk one, two or three times a day, or a spoonful of water sweetened with dark-brown sugar. Should the child be on artificial food, oatmeal-water may be substituted for barley-water in the preparation of the food.

Vomiting.

Babies vomit very easily, because their stomachs are placed more vertically in the body than when they grow older, and over-feeding will cause them to bring up the amount in excess of what the stomach can hold. This vomiting is, of course, not serious. Should the vomited matter be sour and curdy, the child seem to suffer from nausea, weakness or fever, it indicates a condition of indigestion which should receive attention. The management would largely consist in the regulation of the

quality and the quantity of the food, as has just been said.

Thrush. Thrush is a disease due to want of care of the baby's mouth. If milk be allowed to collect on the tongue, it sours, and the presence of this acid favors the development of thrush, which is really a vegetable parasite. White patches may be seen on the soft palate, inside the cheeks, lips and tongue. The attempt to rub off these patches causes bleeding. Gastric catarrh and diarrhœa usually accompany this trouble. Care in cleansing the child's mouth, after each nursing, will prevent the occurrence of thrush. Its treatment consists in the use of an alkaline wash, as borax and water (twenty grains to the ounce), or some antiseptic wash prescribed by the physician.

"Red gum." "Red gum" is an eruption which comes out over the baby in the first or second week of its life. Sometimes these little points of elevation on the skin are white. The eruption is then called "white gum." These eruptions are due to changes in the skin and irritation from exposure to air, and are not serious. They rarely last over a week.

"White gum."

Blisters. The occurrence of little blisters on the child's body, especially on the palms of the hands and soles of the feet, is a matter of more moment and should at once be brought to the attention of the physician, as also should sores around the finger

nails. These indicate a condition of the blood for which the use of remedies prescribed by the physician will be necessary.

Leucorrhœa, "the whites."

Sometimes a whitish, glairy discharge comes from the privates of little girl babies. This is simply the matter found there at birth. Occasionally a little blood may be mixed with it, the result of an abrasion in the vagina, and may last a day or two. The nurse need not be afraid to remove this matter; in fact, if left, it causes irritation of the skin.

Urine.

A healthy baby usually wets its napkin very frequently. It may be every hour during the day, and four or five times at night. Sometimes several hours may pass and yet the napkin remain dry. Either of these conditions may exist in health, being dependent largely upon the weather, the food, etc. If urine is not passed for twelve hours, the condition should be reported.

The nurse may try to make the baby urinate by using fomentations over the bladder and kidneys before reporting the matter to the physician.

Care of skin in excoriations.

The skin of new-born babies is soft and thin, and apt to become sore, especially when two surfaces rub. First, a little crack is noticed, next day this will have widened until, sometimes, a large surface is left bare. To prevent this, proper care of the baby from the very beginning is important. Never use soap. Use warm water in washing it, either

plain warm water or water with sufficient powdered borax to make it soft, and wash the part very carefully; wipe or mop carefully with a soft cloth. Then, to prevent further rubbing of the parts, particularly if the skin be broken, use a piece of patent lint or soft Canton flannel, with some salve, as zinc ointment, containing 20 grs. of boric acid to the ounce, spread over it, and carried into the crease between two rubbing surfaces. This should be changed at least three times a day, or as often as the baby soils the napkin.

Sore eyes.

Baby's sore eyes generally come about from some infection of the eyes through the mother's discharges at the time of the birth, or in lying-in hospitals one baby infects another. Hence, should care be taken to cleanse the eyes immediately after the delivery with a saturated solution of boric acid, or even clean warm water, they may be prevented, as a rule, from getting sore. Should the inflammation occur, however, the nurse must remember that the affection is contagious, through the matter which forms in the eyes. This matter is capable of setting up an inflammation elsewhere, as when a towel used about the eyes may produce a similar inflammation about the privates; a scratch or wound in the hands may be affected by it. The discharge from affected eyes is greenish-white. The poison it contains is not destroyed by drying; it catches and

clings to the room, as the poison of smallpox. Hence, a nurse's hands should be thoroughly cleansed after washing the eyes, and the nails cleaned with a nail-brush. The cloths used in washing the eyes should be burned at once after using. The greatest precautions must be taken not to carry the poison. The nurse's chief care, apart from preventing the spread of the trouble, in such a case, would be to keep the eye or eyes free of the discharge by frequent cleansings with warm water gently syringed into the eye from the inner toward the outer angle, the lids being held everted by their gentle separation by the thumb and finger of one hand. This washing may need to be done every hour. The baby's hands should be kept down by fastening a towel around the child's body, pinning it in the back. The baby may be held between the nurse's knees and its head inclined over a basin, which will receive the water from the washing. Another basin should contain the clean water to be used. Should only one eye be sore, in placing the baby in its crib, or laying it down at any time, the nurse should be careful to place it with the sore eye down, so that any discharge from it may not enter the other eye. Any further irritation, as of a strong light, should be prevented by keeping the baby in a darkened place. Want of attention in these cases may cause a child the loss of its sight.

A room occupied by a baby with sore eyes must afterward be carefully disinfected.

Snuffles. Snuffles, or a cold in the head, shown by watery eyes, sneezing, stopping up of the nose, hence difficulty in nursing, should be managed by keeping the nose cleaned out by means of soft linen twisted into a cone, greasing the nose well afterward with a little oil by carrying it up the nostrils on a twist of cotton, greasing the outside of the nose between the eyes, and keeping the baby warm. If the baby has no hair, the head may be kept warm by a little mull, or in winter thin flannel, cap.

Discharge from ears. Running at the ears is generally very serious in new-born babies, especially when the discharge is matter or blood. Some trouble with the brain may be indicated, hence the physician should be told of it as soon as it is noticed. Of course, the discharge entering the ears at the time of the birth should be carefully excluded from this disorder.

Enlargement of breasts. The breasts of new-born babies often swell. Generally this occurs about the seventh day or during the second week. Occasionally they gather, and must then be lanced by the physician. Nothing should be done for this swelling, except to see that the clothing is loose. It disappears in a few days, as a rule.

Moulding of head. The same may be said of swellings on the head or about the face, which are due to pressure during the birth.

Scalp tumors. One form of scalp tumor may last sev-

eral weeks before its entire disappearance. The latter is the result of temporary injury to the bone, and not simply the ordinary swelling which comes from interference with the circulation of the blood in the soft tissues of this portion of the scalp.

Deformities.

A child may be born with some deformity, as hare-lip, or cleft-palate, or club-foot, or there may be some malformation about the external organs of generation or the bowel. Whatever the deformity may be, the nurse should avoid letting the mother know anything about it until the physician has told her of it. The shock produced by the knowledge may do the mother much injury; hence the physician should bear the responsibility of making the announcement. A nurse will need considerable tact in managing this, as the mother is apt to ask to see her baby very soon after its birth. An excuse may be made by stating the necessity for washing and dressing the child first, or it may be asleep and the nurse hesitate to disturb it.

Tongue-tie.

Quite frequently the bridle beneath the baby's tongue is too short, and interferes with the free movement of the tongue. This is called "tongue-tie." It may prevent the child's nursing, and thus interfere with its nutrition. If the baby can extend the tip of the tongue beyond its lips, it is not probable that there will need to be anything done, as the baby ought to be able to suck a good nipple

with ease. If the nurse should introduce the tip of her little finger into the baby's mouth and allow the child to draw on it for a few minutes, she can tell whether the act of sucking can be properly accomplished. Should it not be able to suck, the attention of the physician should be called to the matter, as the bridle will have to be nicked—an operation following which there may be considerable loss of blood, hence it should not be attempted except by a physician.

Bleeding from the cord.

Bleeding from the cord or navel string may occur within a few hours after birth. It may be that the cord has not been tied sufficiently tight, or there may have been a very thick cord, which, in shrinking, has loosened the ligature. If, after tying, the cord has been looped back upon itself and tied in a single double bow-knot, this may be untied by the nurse and fastened more tightly, so that the bleeding may be controlled, or another ligature may be thrown around the cord a little nearer the body of the child than the first one. Should this not check the hemorrhage, the nurse should hold the cord firmly between thumb and finger, making compression until the physician, who should be sent for, arrives.

"Falling" of cord.

The cord commonly falls off about the fifth day. The process of ulceration, by which it falls off, leaves an open surface on the child's body which

offers an avenue for septic infection. Great care should therefore be taken that the nurse's hands and anything else that comes in contact with this surface are perfectly clean. Should any moisture exist about the stump, the use of the antiseptic powder of salicylic acid and starch, before spoken of, or some other drying-powder of the kind, is indicated. It is necessary, also, to see that the dressing used is thoroughly antiseptic. When infection does exist, it shows itself in the occurrence of inflammation around the navel, or some other part of the body; the child loses flesh, becomes puny and emaciated, and abscesses form in various places. In the majority of cases it dies, not having sufficient vitality to survive the poisoning.

Septic infection of navel.

The physician will, of course, prescribe the treatment for such a child; the nurse will be required to see that these directions are faithfully carried out, and especially that the child gets all the nourishment and stimulation required.

A peculiar yellowish coloration of the skin is to be noticed with babies a few days after the birth. This disappears, as a rule, by the end of the second week, and is due to changes in the circulation.

Jaundice of infancy.

Should the jaundice be very marked and seem to persist, warm baths once or twice a day, with gentle friction over the liver with soap liniment helps,

with free action of the bowels, to overcome the condition.

When the child is suffering from blood-poisoning, the peculiar coloration of the skin is due to this cause.

Convulsions.

Convulsions may occur in very young infants at varying periods after their birth, according to the cause which excites them, as, injury during labor, indigestion, brain trouble, or other causes. The convulsive seizure is generally preceded by twitchings of the limbs, a rolling-up of the eyeballs, so that a large part of the whites of the eyes is seen, the thumbs are drawn into the palms of the hands, and the fingers tightly clasped over them, or the toes may be turned upward or drawn downward. During the convulsion the child grows rigid.

When the attack comes on the nurse should quickly undress the child and place it in a warm bath. A tablespoonful of mustard added to the water will help to stimulate the skin, and the convulsion will gradually subside. The child, on its removal from the bath, may be wrapped in a heated blanket, and allowed to perspire freely. On the recurrence of the convulsion, the same measure of placing the child in the bath should be resorted to, until the physician comes and institutes such other treatment as he may think proper.

Bruises, the result of falls or blows, should be treated by the repeated application of hot compresses. This will relieve pain and prevent swelling and the black and blue coloration of the skin which would otherwise result. Bruises.

The occurrence of a fall or blow should be carefully reported by a nurse, as the child should be carefully examined for the discovery of any injury, the serious consequences of which may be averted by prompt treatment. The occurrence of paleness or vomiting after any such accident is a serious symptom and should receive immediate attention by the physician. Falls and blows.

A hot, dry skin may accompany various of the disorders of infancy, notably inflammatory conditions of the digestive organs and of the lungs. The normal temperature of a new-born baby is 99° Fahr., the pulse 140, the respiration 44. Fever.

Should the child seem to be ailing, its temperature should be taken. A clinical thermometer may be held the requisite number of minutes in the groin or in the folds of the neck. Some slip the bulb of the thermometer into the rectum. Should the temperature be raised, the pulse rapid and the respiration hurried and difficult, some lung trouble probably exists. A catch in the breath, noisy breathing, a distention of the nostrils on taking an inspiration, would indicate the same thing. The Lung troubles.

frequent rubbing of the chest with some counter-irritant liniment, as St. John Long's liniment, the use of the cotton-jacket for the protection of the chest, and, if the child is very feverish, the use of a drop of sweet spirits of nitre in a teaspoonful of water once in three hours, will constitute the nurse's management of the case until the doctor has seen the baby and laid down his plan of treatment. The

Cotton-jacket.

cotton-jacket is made by taking a high-necked, long-sleeved merino vest a size or two larger than would be needed by the baby for ordinary wear, opening it down the front, and fastening tapes an inch or two from each edge in front, by which the jacket may be closed. The inner surface of this vest, back and front, should be quilted with sheep's wool or cotton-batting, the outer surface with oiled silk or oiled muslin. This makes a very warm covering for the chest.

Cyanosis or "blue disease."

Cyanosis, or "blue disease," comes from the imperfect closure of an opening which exists in the heart before birth. The baby is called a "blue baby," and is very delicate in consequence of this imperfection in its circulation. Such babies generally die, if not during infancy, some time during early childhood. With great care they sometimes live, and the opening in the heart gradually closes up. The special care required is to keep the child warm and to handle it very carefully, so that it may be

subjected to no jar or nervous fright. The child should be kept lying on its right side or on its back, in order that there may be as little interference as possible with the action of the heart, and that the tendency of the blood to flow through this opening in the upper chambers of the heart—from right to left—may be overcome.

Rickets. Rickets is a disease of the bones—the result of poor nutrition. There is not sufficient deposit of earthy matter in the bones, hence they remain too soft and are subject to all kinds of distortions in consequence of this. The child may be bow-legged and is stunted in its growth, curvatures of the spine may exist, or an unnaturally large head, known as hydrocephalus, or "water on the brain."

The baby having this disease is very weak, cannot hold up its head well, perspires very freely, especially about the head. The complexion is very white. The baby has constant trouble with its bowels, having green stools nearly all the time. The opening in the front of the head is depressed and the child seems to waste.

As the baby grows older, unless well cared for the evidences of disease increase, the joints are enlarged, the baby cannot support itself on its limbs, its teeth are slow in coming, etc.

The mother can do much for the health of her child while still carrying it, by a careful regard for

her own general health. After the baby's birth it should be kept well nourished, to overcome any tendency to this disease. Salt baths, oil baths, and the use of tonics ordered by the physician, as cod-liver oil, together with careful attention to the quality and quantity of nourishment, will do much to prevent the progress of rickets.

Vaccination rash.

The question often arises as to how soon a baby should be vaccinated, particularly if smallpox be prevalent. As a matter of experience, it is found that the vaccination does not "take" well before the third month, though, if a younger baby is to be exposed to the poison, it would be well to have it vaccinated. Vaccination should be avoided, if possible, when the baby's health is run down from any cause, also at the time of teething. A peculiar and distressing form of rash sometimes occurs, or there is a great deal of inflammation following the vaccination, leading the parents to imagine that the baby has been poisoned by the virus used.

The world's debt to nurses and mothers.

An insight into the frailty of human life in its earliest days proves how much the world owes to the faithfulness of mothers and nurses for the existence of its great and good men and women, and should be a stimulus to scientific research in the discovery of improved methods for the management of infancy.

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